

**EDUCATIONAL EMPLOYEES' SUPPLEMENTARY
RETIREMENT SYSTEM OF FAIRFAX COUNTY (ERFC)**
*35TH ANNUAL ACTUARIAL VALUATION
DECEMBER 31, 2014*

REPORT OF THE DECEMBER 31, 2014 ACTUARIAL VALUATION OUTLINE OF CONTENTS

Section	Pages	Items
	1-2	Cover Letter
	3	Comments
A	A1-A4	FINANCIAL PRINCIPLES
B		RESULTS OF THE VALUATION
	B-1	Financing Benefit Promises (Pie Chart)
	B2-B3	Computed Employer Contribution Rates
	B4-B7	Accrued Liabilities
	B-8	Change in Unfunded Accrued Liabilities (Gain/Loss)
	B-9	Gains and Losses by Risk Area
	B-10	Gains and Losses – Comparative Statement
	B-11	Financing Benefit Promises – Revisited (Pie Charts)
	B12-B13	Expected Development of Present Population (Pie Charts)
C	C1-C8	SUMMARY OF BENEFITS
D		FINANCIAL INFORMATION
	D-1	Summary of Financial Information
	D-2	Portfolio Composition at Market Value
	D3-D4	Funding Value of Assets
E		COVERED MEMBER DATA
	E1-E7	Active Members
	E8-E14	Retirees and Beneficiaries
	E15-E17	Vested Deferred Members
F	F1	SUMMARY OF RISK MEASURES BASED ON MARKET VALUE OF ASSETS
G	G1-G16	ACTUARIAL ASSUMPTIONS AND MISCELLANEOUS

May 20, 2015

The Board of Trustees
Educational Employees' Supplementary
Retirement System of Fairfax County
Fairfax, Virginia

Dear Board Members:

Submitted in this report are the results of our 35th annual actuarial valuation of the Educational Employees' Supplementary Retirement System of Fairfax County (ERFC), based on data as of ***December 31, 2014***.

This report was prepared at the request of the Executive Director and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with permission of the Board.

The purpose of this valuation was to measure the System's funding progress. Information related to the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 will be provided in a separate report. This report should not be relied on for any purpose other than the purpose described in the primary communication.

The valuation was based upon information furnished by your Executive Director and staff, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. Their efforts in furnishing this material are acknowledged with our appreciation. We checked for internal and year-to-year consistency, but did not otherwise audit the information supplied. We are not responsible for the accuracy or completeness of the information supplied by others.

The actuarial assumptions used in making the actuarial valuation are shown in Section G of this report. The assumptions were adopted by the Board of Trustees following a study of experience covering the five-year period ending December 31, 2009.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

The Board of Trustees
May 20, 2015
Page 2

To the best of our knowledge, the information contained in this report is accurate and fairly represents the actuarial position of ERFC as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

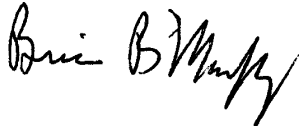
The signing actuaries are independent of the plan sponsor.

Brian B. Murphy and Judith A. Kermans are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

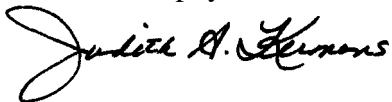
Your attention is directed particularly to:

Comments on page 3;
Computed Employer Contribution Rates on page B-2;
Comparative Statement on page B-5; and
Short Condition Test on page B-7.

Respectfully submitted,



Brian B. Murphy, FSA, EA, FCA, MAAA



Judith A. Kermans, EA, FCA, MAAA

BBM/JAK:bd

COMMENTS

Funding Policy: The ERFC Funding Policy, as stated in the ERFC Plan Document is “*to establish and receive contributions which will remain approximately level from generation to generation of citizens and which, when combined with other assets and investment return thereon, will be sufficient to pay benefits when due, while providing a reasonable margin for adverse experience.*”

Contribution Rate Policy: Actuarial valuations as of odd-numbered years (2013, 2015, etc.) are used to set the employer contribution rate for the two-year period beginning 18 months after the valuation date. For example, the December 31, 2013 valuation was used to determine the contribution rate for the period July 1, 2015 to June 30, 2017. Actuarial valuations as of even numbered years, such as this valuation, provide an interim measure of the financial condition of ERFC and are also used for financial reporting in connection with the Governmental Accounting Standards Board (GASB) Statements, in accordance with parameters specified by the GASB. For funding purposes, unfunded accrued liabilities are currently being amortized over a closed 30-year period ending on June 30, 2040. The remaining amortization period in the December 31, 2014 valuation is 24 years.

Contribution Rate: The contribution rate for the two-year period beginning July 1, 2015 was calculated in the December 31, 2013 valuation to be 5.60% of payroll. The rate was estimated to be the minimum amount that would avoid a funding shortfall for the two-year funding period (July 1, 2015 to June 30, 2017) based on the following assumptions: 1) investment return of 7.5% in all future years; 2) 3.75% pay increases in all future years; 3) benefit provisions remain unchanged; and (4) other plan experience is in line with expectations. The funding policy contribution of 5.60% of pay included a calculated rate of 5.54% of pay for Fiscal Year 2016 plus a contingency contribution of 0.06% of pay. For Fiscal Year 2017, the calculated rate is 5.59% of pay and the contingency contribution of 0.01%; therefore, the 5.60% Funding Policy rate is sufficient for Fiscal Year 2017.

Plan Experience: ERFC’s market value rate of return as measured by the actuary was 4.7%, which was unfavorable. However, plan liabilities and payroll grew less than expected. The funded percent is now 77.7%, which is higher than last year’s funded percent of 76.7%. If the market value of assets were the basis for the measurement (as opposed to the funding value with five-year smoothing of gains and losses and a 25% corridor), the funded percent would be 78.5% and the calculated rate for Fiscal Year 2017 would be 5.47% of payroll (with a contingency contribution of 0.13%).

Financial Status: Based upon the December 31, 2014 valuation, the Fairfax County ERFC is operating in accordance with its Funding Policy and with actuarial principles of level percent-of-payroll financing. ERFC is fortunate that its long standing commitment to excellence in funding has resulted in financial strength that provides a solid basis for the future.

Experience Study: The last comprehensive study of plan experience in the Retirement System was completed after the December 31, 2009 valuation. A similar study is scheduled to be undertaken for the 5-year period ending December 31, 2014. This study will be started in May so that it can be incorporated into the December 31, 2015 valuation and the June 30, 2015 GASB Statements No. 67 and No. 68 report.

SECTION A

FINANCIAL PRINCIPLES

FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES

Promises Made, and Eventually Paid. As each year is completed, the plan in effect hands an “IOU” to each member then acquiring a year of service credit --- The “IOU” says: “The Educational Employees’ Supplementary Retirement System of Fairfax County owes you one year’s worth of retirement benefits, payments in cash commencing when you qualify for retirement.”

The related ***key financial questions*** are:

Which generation of taxpayers contributes the money to cover the IOU?

The present taxpayers, who receive the benefit of the member’s present year of service?

Or the future taxpayers, who happen to be in Fairfax County at the time the IOU becomes a cash demand?

The financing plan intends that this year’s taxpayers contribute the money to cover the IOUs being handed out this year. By following this principle, ***the employer contribution rate will remain approximately level from generation to generation*** --- your children and grandchildren will contribute the same percents of active payroll you contribute now.

(There are systems which have a design for deferring contributions to future taxpayers, lured by a lower contribution rate now and putting aside the consequence that the contribution rate must then relentlessly grow much greater over decades of time --- consume now, and let your children face higher contributions after you retire.)

An inevitable by-product of the level-cost design is the accumulation of reserve assets for decades, and the income produced when the assets are invested. ***Invested assets are a by-product and not the objective.*** ***Investment return*** becomes, in effect, the third contributor for benefits to employees, and is interlocked with the contribution amounts required from employees and employers.

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Current Cost (the cost of members' service being rendered this year)

... plus ...

Interest on Unfunded Accrued Liabilities (unfunded accrued liabilities are the difference between (i) liabilities for service already rendered and (ii) the accrued assets of the plan).

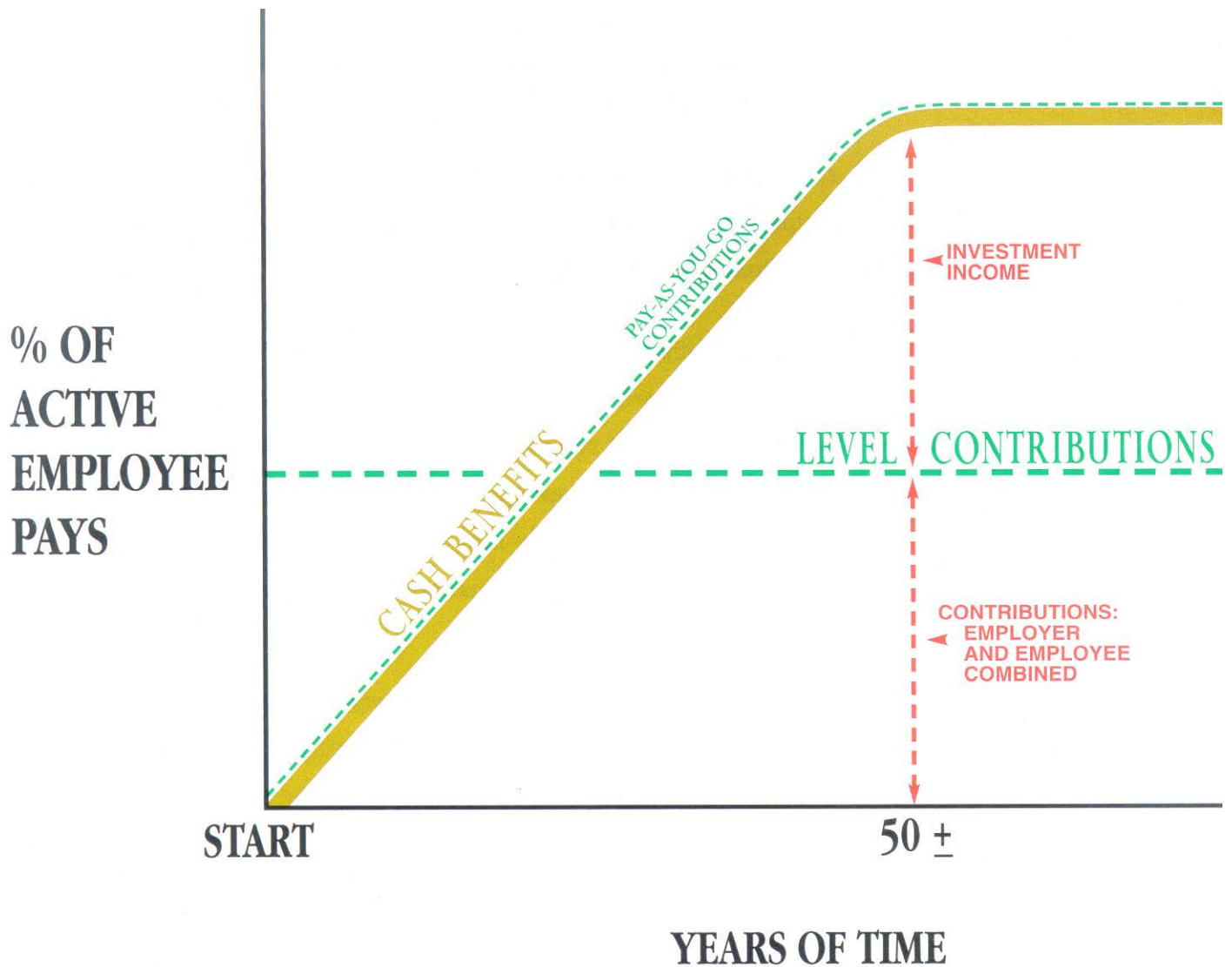
Computing Contributions to Support Plan Benefits. From a given schedule of benefits and from the employee data and asset data furnished, the actuary determines the contribution rates to support the benefits, by means of ***an actuarial valuation and a funding method.***

An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets are assumed to earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement.

In preparing an actuarial valuation, assumptions must be made as to what the above rates will be for the next year and for decades in the future. Only the subsequent actual experience of the plan can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions and regardless of the skill of the actuary and the millions of calculations made. The demographic future can be predicted with considerable but not 100% precision. However, ***inflation rates seem to defy reliable prediction.***

The plan copes with these continually changing differences by having periodic actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is ***continuing adjustments in financial position.***



CASH BENEFITS LINE. This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE. Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

Economic Risk Areas

- Rates of investment return
- Rates of pay increase
- Changes in active member group size

Non-Economic Risk Areas

- Ages at actual retirement
- Rates of mortality
- Rates of withdrawal of active members (turnover)
- Rates of disability

THE ACTUARIAL VALUATION PROCESS

The financing diagram on the opposite page shows the relationship between the two fundamentally different philosophies of paying for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program) and is thus an *increasing contribution method*; and the *level contribution method* which equalizes contributions between the generations.

The actuarial valuation is the mathematical process by which the level contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

Covered Person Data, furnished by plan administrator

Retired lives now receiving benefits

Former employees with vested benefits not yet payable

Active employees

+ *Asset Data* (cash and investments), furnished by plan administrator

+ *Assumptions concerning future financial experiences in various risk areas*,
which assumptions are established by the Board of Trustees after consulting with the actuary

+ *The funding method* for employer contributions (the long-term, planned pattern for employer contributions)

+ *Mathematically combining the assumptions, the funding method, and the data*

= Determination of:

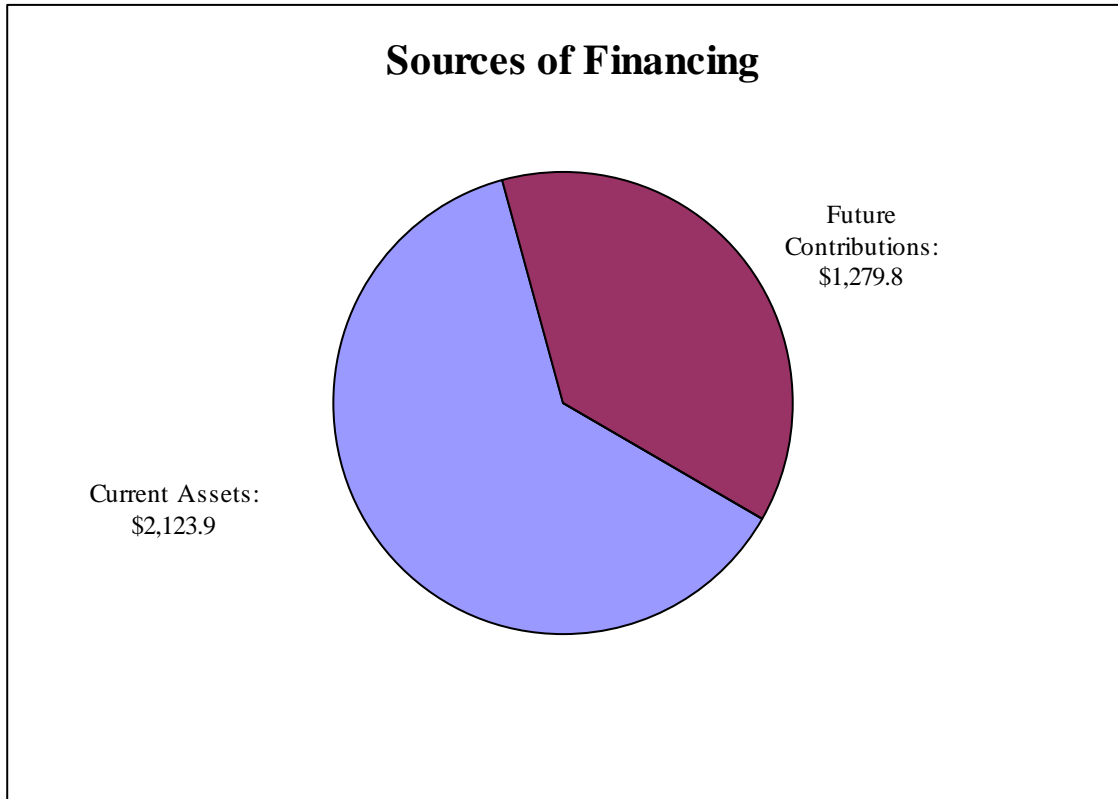
Plan Financial Position

and/or *New Employer Contribution Rate*

SECTION B

RESULTS OF THE VALUATION

FINANCING \$3,403.7 MILLION OF BENEFIT PROMISES
DECEMBER 31, 2014
(\$ IN MILLIONS)



The pie chart above shows that the total amount of benefit promises made to members in *ERFC* and *ERFC 2001* is \$3,403.7 million, based on plan assumptions as of December 31, 2014. In actuarial terms this is called the present value of future benefit payments. It represents the amount of money, shown in today's dollars, needed to pay benefits to current and future retirees based on plan assumptions. These assumptions are outlined in Section G of this report. The \$3,403.7 million would be sufficient to pay promised benefits if plan members leave active employment as expected (retire, quit, etc.), and live exactly according to plan mortality assumptions. A major assumption in calculating the \$3,403.7 million number is that investments earn 7.50% per year. Investment return during 2014, as measured by the actuary, was 4.7% on a market value basis.

**COMPUTED EMPLOYER CONTRIBUTION RATES
(AS PERCENTS OF ACTIVE MEMBER PAYROLL)**

Valuation Date	December 31, 2014	December 31, 2013
Contributions for Period Ending June 30	n/a	2016 and 2017
Normal Cost (current cost):		
Service Retirement	3.97%	3.91%
Reduced Service Retirement	0.46%	0.49%
Casualty Benefits	0.10%	0.10%
Separation Benefits	1.32%	1.30%
Totals	5.85%	5.80%
Member Contributions	3.00%	3.00%
Employer Normal Cost	2.85%	2.80%
Unfunded Actuarial Accrued Liability	2.74%	2.74%
Actuarially Determined Employer Contribution	5.59%	5.54%
Contingency Contribution	0.01%	0.06%
Funding Policy Contribution	5.60%	5.60%

Unfunded liability was amortized as a level percent of payroll over 24 years in the December 31, 2014 valuation and 25 years in the December 31, 2013 valuation. If this schedule is continued, unfunded liabilities will be fully amortized on June 30, 2040.

The Funding Policy contribution for the two-year period beginning July 1, 2015 is determined by the December 31, 2013 valuation. The contribution rate was calculated to be 5.60% of payroll (5.54% plus 0.06% Contingency Contribution). This rate was estimated to be the minimum amount that would be sustainable for the period July 1, 2015 to June 30, 2017 based on the following assumptions: 1) investment return of 7.5% in all future years; 2) 3.75% pay increases in all future years; 3) benefit provisions remain unchanged; and (4) other plan experience is in line with expectations. Although investment experience was less favorable than assumed during 2014, other gains offset some of the investment loss and the Funding Policy rate of 5.60% of payroll was determined to be sufficient for Fiscal Year 2017.

CONTRIBUTION RATE HISTORY

Fiscal Year	Valuation Date	Employee Rate	Adopted Employer Rate		ADEC
			Support	Educational	
1991	1989	2.00%	5.08%	5.53%	
1992	1990	2.00%	5.08%	5.53%	
1993	1991	2.00%	5.08%	5.53%	
1994	1992	2.00%	5.08%	5.53%	
1995	1993	2.00%	5.08%	5.53%	
1996	1994	2.00%	5.08%	5.53%	
1997	1995	2.00%	5.58%	6.03%	
1998	1996	2.00%	5.58%	6.03%	
1999	1997	2.00%	5.58%	6.03%	
			Combined July 1, 1999		
2000	1998	2.00%	4.99%		
2001	1999	2.00%	3.69%		
2002	2000	2.00%	3.69%		
2003	2001	2.00%	4.00%		
2004	2002	2.00% / 4.00%	4.29% / 2.53%		
2005	2003	4.00%	3.37%		
2006	2004	4.00%	3.37%		
2007	2004	4.00%	3.37%		
2008	2005	4.00%	3.37%		3.37%
2009	2005	4.00%	3.37%		3.14%
2010	2007	4.00%	3.20%		2.97%
2011	2007	4.00%	4.04%		4.04%
2012	2009	4.00%	4.34%		4.16%
2013	2009	3.00%	5.34%		5.38%
2014	2011	3.00%	5.60%		5.51%
2015	2011	3.00%	5.60%		5.58%
2016	2013	3.00%	5.60%		5.54%
2017	2013	3.00%	5.60%		5.59%

- Notes:
1. In June of 2004, the member rate was increased to 4% and the employer rate was decreased to 2.53%.
 2. The valuation date was June until 2004 when it was changed to December.
 3. Rate for FY 2011 was increased to the ARC. The Funding Policy would have resulted in 3.20%.
 4. On July 1, 2012, the member rate was decreased to 3.0% in conjunction with a restructuring of the VRS employee contribution rate.
 5. ADEC is the Actuarially Determined Employer Contribution resulting from the Funding Policy.

ACTUARIAL ACCRUED LIABILITIES

Accrued Liabilities for	Amounts at December 31	
	2014	2013
Present Active Members	\$1,141,314,481	\$1,088,768,618
Present Inactive Vested Members	81,813,031	73,960,919
Present Retirees and Beneficiaries	1,510,717,282	1,482,770,103
Total Actuarial Accrued Liabilities	\$2,733,844,794	\$2,645,499,640
Funding Value of Assets	2,123,910,320	2,029,004,521
Unfunded Actuarial Accrued Liability	\$ 609,934,474	\$ 616,495,119
Actuarial Funded Percent	77.69%	76.70%
Market Value Funded Percent	78.52%	79.41%

**ASSETS AND LIABILITIES
COMPARATIVE STATEMENT**

Valuation Date	Active Member Payroll	Computed Liabilities			Valuation Assets	Unfunded Accrued Liabilities	Funded %
		Retired	Other Members	Total			
(\$ in thousands)							
2/29/1980	\$ 169,924	\$ 38,288	\$ 138,708	\$ 176,996	\$ 74,173	\$ 102,823	41.9%
6/30/1985	251,691	96,588	240,351	336,939	221,656	115,283	65.8%
6/30/1986@	277,545	116,773	264,611	381,384	284,195	97,189	74.5%
6/30/1987	305,051	136,073	293,170	429,243	325,127	104,116	75.7%
6/30/1988\$#	340,946	163,959	343,523	507,482	359,069	148,413	70.8%
6/30/1989	369,575	203,394	357,569	560,963	405,317	155,646	72.3%
6/30/1990	411,970	240,122	404,751	644,873	461,450	183,423	71.6%
6/30/1991	451,873	285,618	432,109	717,727	510,825	206,902	71.2%
6/30/1992	447,474	318,072	445,498	763,570	563,644	199,926	73.8%
6/30/1993#@	450,530	344,160	564,207	908,367	717,701	190,666	79.0%
6/30/1994	480,995	374,849	597,230	972,079	766,480	205,599	78.8%
6/30/1995\$	521,044	395,249	677,287	1,072,536	839,930	232,606	78.3%
6/30/1996	531,060	436,181	694,363	1,130,544	934,571	195,973	82.7%
6/30/1997	553,709	464,345	751,022	1,215,367	1,045,412	169,955	86.0%
6/30/1998#	582,755	490,261	788,111	1,278,372	1,194,556	83,816	93.4%
6/30/1999	626,015	539,917	805,742	1,345,659	1,365,417	(19,758)	101.5%
6/30/2000	678,937	614,739	752,632	1,367,371	1,505,231	(137,860)	110.1%
6/30/2001\$	759,906	667,605	884,953	1,552,558	1,599,219	(46,661)	103.0%
6/30/2002	781,756	699,251	994,705	1,693,956	1,619,889	74,067	95.6%
6/30/2003\$	866,502	903,963	868,455	1,772,418	1,597,459	174,959	90.1%
12/31/2004#	977,817	1,083,988	851,594	1,935,582	1,643,020	292,562	84.9%
12/31/2005	1,050,217	1,130,378	892,584	2,022,962	1,718,399	304,563	84.9%
12/31/2006	1,111,828	1,176,979	928,573	2,105,552	1,818,930	286,622	86.4%
12/31/2007	1,161,432	1,221,969	964,832	2,186,801	1,924,886	261,915	88.0%
12/31/2008@	1,211,140	1,237,613	1,017,685	2,255,298	1,733,946	521,352	76.9%
12/31/2009#	1,208,093	1,314,885	1,024,984	2,339,869	1,769,540	570,329	75.6%
12/31/2010@	1,191,290	1,355,093	1,028,968	2,384,061	1,822,603	561,458	76.5%
12/31/2011\$	1,246,973	1,401,877	1,069,087	2,470,964	1,866,952	604,012	75.6%
12/31/2012	1,297,537	1,448,291	1,117,837	2,566,128	1,935,292	630,836	75.4%
12/31/2013	1,320,309	1,482,770	1,162,730	2,645,500	2,029,005	616,495	76.7%
12/31/2014	1,340,344	1,510,717	1,223,128	2,733,845	2,123,910	609,935	77.7%

@ After change in asset valuation method.

\$ After change in benefits or contribution rates (member contribution rate decrease in Fiscal 2012).

After changes in actuarial assumptions.

**ASSETS AND LIABILITIES
EXPRESSED AS PERCENTS OF ACTIVE MEMBER PAYROLL
COMPARATIVE STATEMENT**

Valuation Date	Active Member Payroll (\$ thousands)	As Percents of Active Member Payroll		
		Computed Liabilities	Valuation Assets	Unfunded Liabilities
2/29/1980	\$ 169,924	104%	44%	61%
6/30/1985	251,691	134%	88%	46%
6/30/1986@	277,545	137%	102%	35%
6/30/1987	305,051	141%	107%	34%
6/30/1988\$#	340,946	149%	105%	44%
6/30/1989	369,575	152%	110%	42%
6/30/1990	411,970	157%	112%	45%
6/30/1991	451,873	159%	113%	46%
6/30/1992	447,474	171%	126%	45%
6/30/1993#@	450,530	202%	159%	42%
6/30/1994	480,995	202%	159%	42%
6/30/1995\$	521,044	206%	161%	45%
6/30/1996	531,060	213%	176%	37%
6/30/1997	553,709	219%	189%	30%
6/30/1998#	582,755	219%	205%	14%
6/30/1999	626,015	215%	218%	(3)%
6/30/2000	678,937	201%	222%	(21)%
6/30/2001\$	759,906	204%	210%	(6)%
6/30/2002	781,756	217%	207%	10%
6/30/2003\$	866,502	205%	184%	21%
12/31/2004#	977,817	198%	168%	30%
12/31/2005	1,050,217	193%	164%	29%
12/31/2006	1,111,828	189%	164%	25%
12/31/2007	1,161,432	188%	166%	22%
12/31/2008@	1,211,140	186%	143%	43%
12/31/2009#	1,208,093	194%	146%	48%
12/31/2010@	1,191,290	200%	153%	47%
12/31/2011\$	1,246,973	198%	150%	48%
12/31/2012	1,297,537	198%	149%	49%
12/31/2013	1,320,309	200%	154%	46%
12/31/2014	1,340,344	204%	158%	46%

@ After change in asset valuation method.

\$ After changes in benefits or contribution rates (member contribution rate decrease in Fiscal 2012).

After changes in actuarial assumptions.

In an inflationary economy the value of dollars is decreasing. Since observation of only the dollar amounts of key facts can be misleading, observation of relationships among key facts tells a more relevant story of the changes in financial strength. ***The smaller the ratio of unfunded liabilities to active member payroll, the stronger the system.*** Observation of this relative index over a period of years indicates changes in strength. The larger the ratio of liability and assets to payroll, the greater the inherent contribution rate volatility.

SHORT CONDITION TEST

If the contributions to ERFC are level in concept and soundly executed, the System will be able to *pay all promised benefits when due -- the ultimate test of financial soundness*. Testing for level contribution rates is *the long-term test*. A *short condition test* is one means of checking a system's progress under its funding program. In a short condition test, the plan's present assets (cash and investments) are compared with:

- 1) Active member contributions on deposit;
- 2) The liabilities for future benefits to present retired lives; and
- 3) The liabilities for service already rendered by active members.

In a system that has been following the discipline of level percent of payroll financing, the liabilities for active member contributions on deposit (Liability 1) and the liabilities for future benefits to present retired lives (Liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (Liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of Liability 3, the stronger the condition of the system.

Valuation Date	Aggregate Actuarial Accrued Liabilities For			Valuation Assets	Portion of Accrued Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Member Contributions	Retirees and Beneficiaries	Members (Employer Financed Portion)				
	(... \$1,000s ...)						
6/30/1993#@	\$ 115,312	\$ 344,160	\$448,895	\$ 717,701	100%	100%	58%
6/30/1994	129,428	374,849	467,802	766,480	100%	100%	56%
6/30/1995\$	143,150	395,249	534,137	839,930	100%	100%	56%
6/30/1996	146,228	436,181	548,135	934,571	100%	100%	64%
6/30/1997	144,063	464,345	606,959	1,045,412	100%	100%	72%
6/30/1998#	149,220	490,261	638,891	1,194,556	100%	100%	87%
6/30/1999	154,582	539,917	651,160	1,365,417	100%	100%	103%
6/30/2000	157,148	614,739	595,484	1,505,231	100%	100%	123%
6/30/2001\$	178,564	667,605	706,389	1,599,219	100%	100%	107%
6/30/2002	170,849	699,251	823,856	1,619,889	100%	100%	91%
6/30/2003\$	176,648	903,963	691,807	1,597,459	100%	100%	75%
12/31/2004#	227,725	1,083,988	623,869	1,643,020	100%	100%	53%
12/31/2005	257,142	1,130,378	635,442	1,718,399	100%	100%	52%
12/31/2006	239,780	1,176,979	688,793	1,818,930	100%	100%	58%
12/31/2007	269,404	1,221,969	695,428	1,924,886	100%	100%	62%
12/31/2008@	302,910	1,237,613	714,775	1,733,946	100%	100%	27%
12/31/2009#	342,663	1,314,885	682,321	1,769,540	100%	100%	16%
12/31/2010@	374,086	1,355,093	654,882	1,822,603	100%	100%	14%
12/31/2011\$	402,847	1,401,877	666,240	1,866,952	100%	100%	9%
12/31/2012	426,609	1,448,291	691,228	1,935,292	100%	100%	9%
12/31/2013	439,310	1,482,770	723,420	2,029,005	100%	100%	15%
12/31/2014	457,591	1,510,717	765,537	2,123,910	100%	100%	20%

@ After change in asset valuation method.

\$ After change in benefits or contribution rates (member contribution rate decrease in Fiscal 2012).

After changes in actuarial assumptions.

**CHANGE IN UNFUNDED ACCRUED LIABILITIES
DURING THE YEAR ENDING DECEMBER 31, 2014
(\$ IN MILLIONS)**

	As of December 31	
	2014	2013
1. UAAL* at start of year	\$ 616.5	\$ 630.8
2. Normal Cost (5.8% of 2014 payroll)	77.7	76.3
3. Member and employer contributions	114.4	109.0
4. Interest accrual	44.9	46.1
5. Expected UAAL before changes: (1. + 2. - 3. + 4.)	624.7	644.2
6. Change from non-recurring activities and benefit changes	-	-
7. Expected UAAL after changes: (5. + 6.)	624.7	644.2
8. Actual UAAL at end of year	609.9	616.5
9. Gain (loss): (7. - 8.)	\$ 14.8	\$ 27.7
Gain (loss) as percent of actuarial accrued liabilities at start of year	0.6%	1.1%

* *Unfunded Actuarial Accrued Liability.*

The above schedule estimates the total gain or loss on the Retirement System activities for the year. The next page shows the breakdown of the total gain or loss by Source. Risk areas related to assumptions include Economic Risks and Demographic Risks. Economic Risks relate to Pay Increases and Investment Return. Demographic Risks relate to rates of retirement, death, disability, and other terminations. Risks not directly related to assumptions include granted additional service credit, data adjustments, timing of financial transactions, etc.

**CHANGE IN UNFUNDED ACCRUED LIABILITIES
GAINS AND LOSSES BY RISK AREA
DURING THE YEAR ENDING DECEMBER 31, 2014**

Type of Risk Area	Gain (Loss) in Period			Percent of Liabilities
	\$ in millions			
	<i>ERFC</i>	<i>ERFC</i> 2001	Totals	
Risks Related to Assumptions				
Economic Risk Areas:				
Pay Increases	\$4.6	\$3.9	\$ 8.5	0.3%
Investment Return			(2.8)	(0.1)%
Demographic Risk Areas:				
Full and Reduced Service Retirements	5.5	0.3	5.8	0.2%
Vested Deferred Retirements	(3.3)	5.2	1.9	0.1%
Ordinary Death Benefits	0.6	0.0	0.6	0.0%
Service-Connected Death Benefits	0.0	0.0	0.0	0.0%
Ordinary Disability Benefits	(0.3)	(0.2)	(0.5)	0.0%
Service-Connected Disability Benefits	(0.1)	(0.1)	(0.2)	0.0%
Terminated with Refund	(0.8)	(0.5)	(1.3)	0.0%
Post-Retirement Mortality	(7.9)	0.0	(7.9)	(0.3)%
Data Adjustments and Miscellaneous			10.7	0.4%
Total Gain (or Loss) During Period			14.8	0.6%
Beginning of Year Accrued Liabilities			\$ 2,645.5	

EXPERIENCE GAINS & LOSSES BY RISK AREA
COMPARATIVE STATEMENT
(\$ IN MILLIONS)

Experience Period	Pay Increases	Investment Return	Retirement	Disability & Death-in-Service	Other Separations	Other ^{&}	Total Gain (Loss)	
							\$	Percent of Liabilities
1992-1993	\$ 15.1	\$ 34.6	\$ (16.3)	\$ (1.0)	\$ (6.5)	\$ (17.3)	\$ 8.6	1.1 %
1993-1994#	(4.1)	4.7	(1.6)	(3.7)	3.5	(15.2)	(16.4)	(1.8)%
1994-1995	(9.7)	25.2	5.1	(1.4)	(4.4)	(5.5)	9.3	0.9 %
1995-1996	(7.7)	45.4	4.1	(1.8)	(5.6)	4.3	38.7	3.6 %
1996-1997	9.9	53.5	2.9	(1.7)	(4.5)	(8.7)	51.4	4.5 %
1997-1998#	(2.6)	81.1	5.9	(0.5)	6.4	(13.9)	76.4	6.3 %
1998-1999*	(8.4)	95.4	0.3	(1.0)	6.5	(3.8)	89.0	7.0 %
1999-2000	(17.6)	62.3	3.8	(1.2)	12.9	38.9	99.1	7.4 %
2000-2001	(9.1)	17.6	(0.3)	(1.0)	13.0	(19.5)	0.7	0.0 %
2001-2002	3.0	(50.4)	3.5	(1.1)	2.6	(29.9)	(72.3)	(4.7)%
2002-2003	18.5	(92.5)	11.0	(0.3)	4.0	(23.3)	(82.6)	(4.9)%
2003-2004#@								
2005	(7.1)	1.9	1.0	0.1	0.0	(3.2)	(7.3)	(0.4)%
2006	(4.7)	23.6	2.0	0.0	(0.8)	2.6	22.7	1.1 %
2007	10.0	25.1	1.9	(0.2)	(2.2)	(7.2)	27.4	1.4 %
2008	4.1	(277.5)	5.2	(0.4)	(4.0)	13.5	(259.1)	(11.8)%
2009	45.0	(34.6)	8.8	(0.8)	(10.0)	(11.6)	(3.2)	(0.1)%
2010#	53.1	(16.9)	5.2	0.2	(5.3)	(4.2)	32.1	1.4 %
2011	18.8	(30.6)	5.3	(0.2)	(4.2)	(4.8)	(15.7)	(0.7)%
2012	12.3	(10.8)	4.6	(0.3)	(3.4)	(10.2)	(7.8)	(0.3)%
2013	16.6	7.6	5.7	0.0	2.9	(5.1)	27.7	1.1 %
2014	8.5	(2.8)	5.8	(0.1)	0.6	2.8	14.8	0.6 %

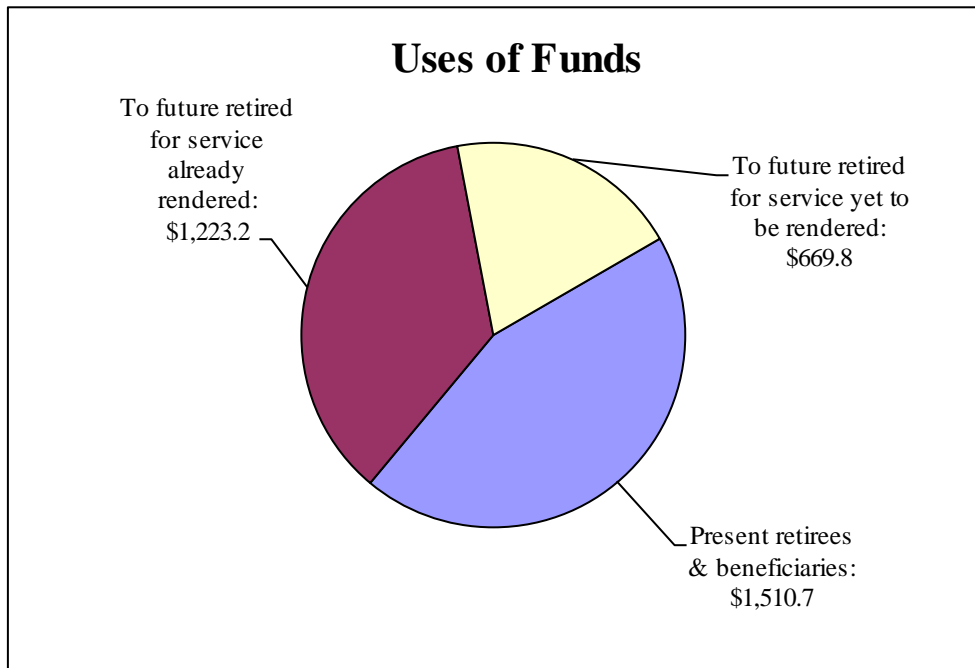
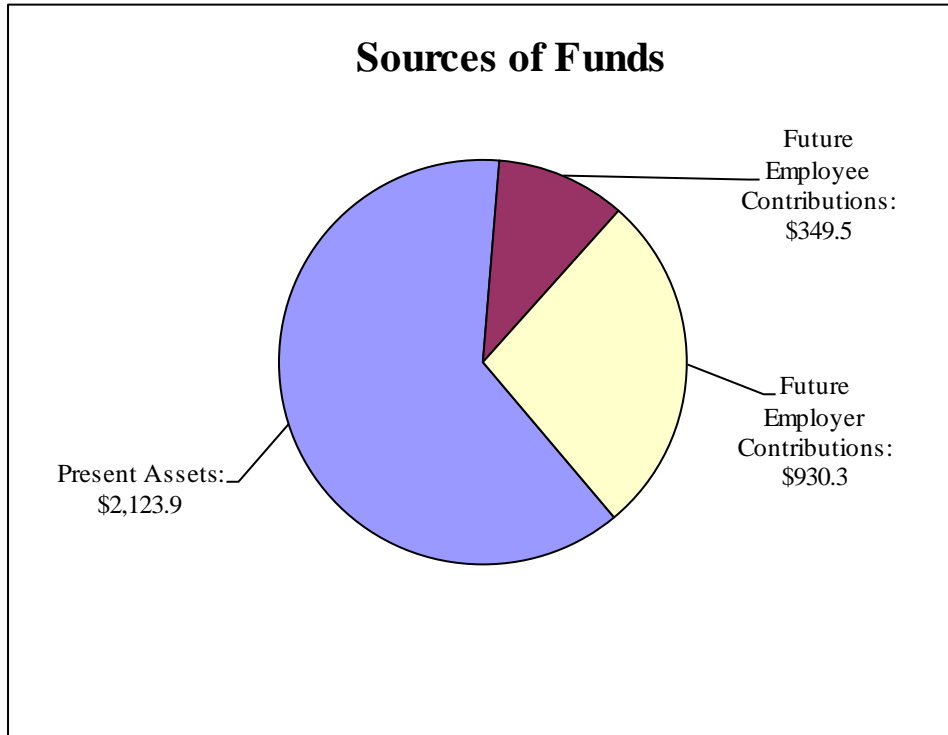
Experience Study.

* Updated Gain Formulas.

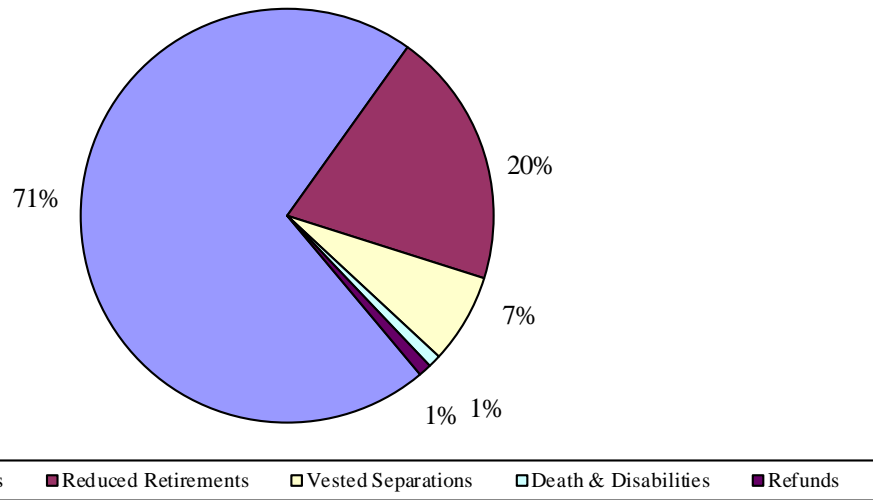
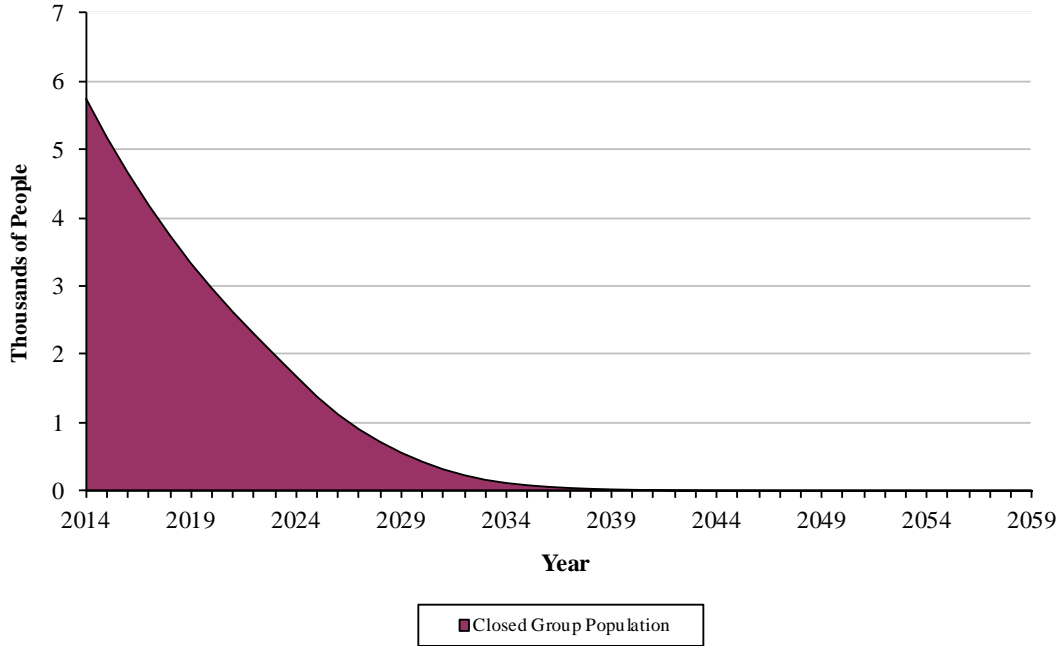
@ Gain (Loss) Analysis not performed.

& Includes post-retirement mortality.

**FINANCING \$3,403.7 MILLION OF BENEFIT PROMISES
DECEMBER 31, 2014
(\$ IN MILLIONS)**



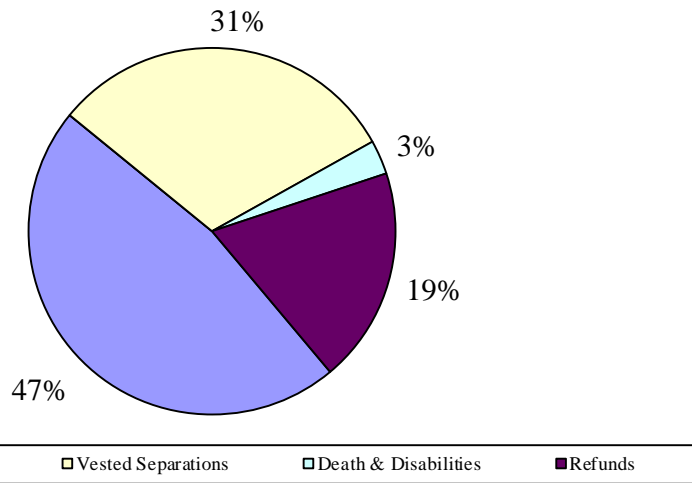
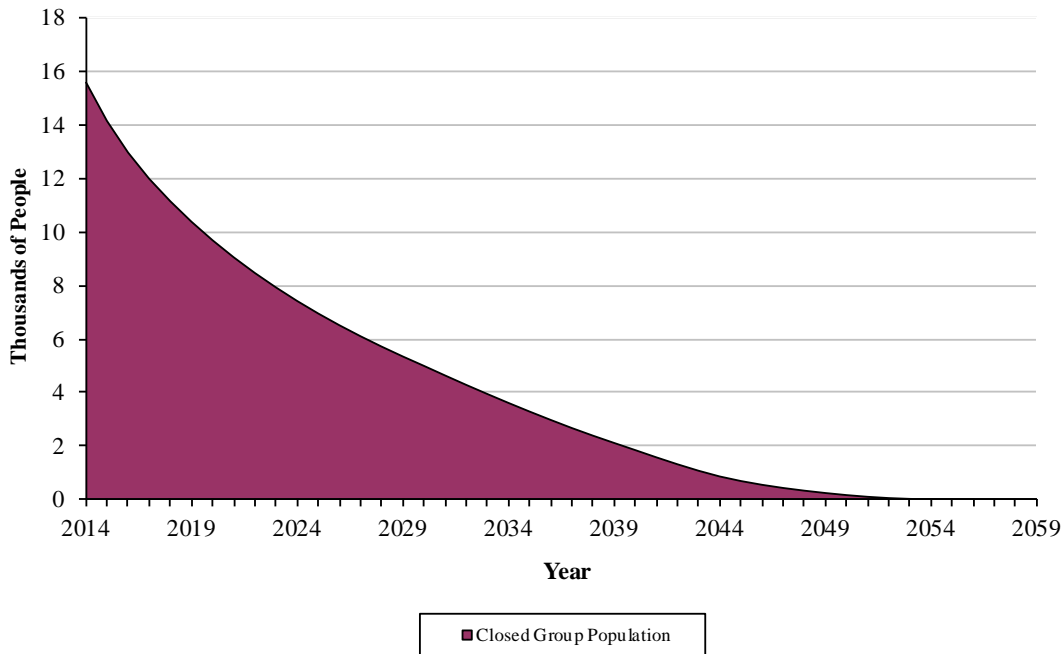
EXPECTED DEVELOPMENT OF PRESENT POPULATION – ERFC DECEMBER 31, 2014



The charts show the expected future development of the present population in simplified terms. ERFC presently covers 5,754 active members. Eventually, 1% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Approximately 98% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by separating from service without withdrawing contributions. 1% of the present population is expected to become eligible for death-in-service or disability benefits. Within 7 years, over half of the current membership will have left the group.

EXPECTED DEVELOPMENT OF PRESENT POPULATION – ERFC 2001

DECEMBER 31, 2014



The charts show the expected future development of the present population in simplified terms. ERFC 2001 presently covers 15,598 active members. Eventually, 19% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Approximately 78% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by separating from service without withdrawing contributions. 3% of the present population is expected to become eligible for death-in-service or disability benefits. Within 10 years, over half of the current membership will have left the group. The proportion of new hires in this plan will increase more rapidly than normal because the ERFC legacy plan is closed to new hires.

SECTION C

SUMMARY OF BENEFITS

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2014
MEMBERS HIRED AFTER JULY 1, 1988 BUT BEFORE JULY 1, 2001
ERFC

1. **Service Retirement Eligibility.** A member may retire any time after reaching the service retirement date, which is either (i) age 65 with 5 years of service or (ii) age 55 with 25 years of service.
2. **Reduced Service Retirement Eligibility.** A member with 25 years of service but younger than age 55 may retire after age 45. A member with less than 25 years of service and younger than age 65 may retire after age 55.
3. **Deferred Retirement Eligibility.** An inactive member with 5 or more years of service will be entitled to a pension with payments beginning at age 55, provided she/he does not withdraw accumulated member contributions.
4. **Death-in-Service Benefit Eligibility.** An active member with 5 or more years of service who dies will have benefits payable to the surviving spouse or other eligible beneficiary. The 5-year service requirement is waived if the death is service-connected.
5. **Disability Retirement Eligibility.** An active member with 5 or more years of service who becomes totally and permanently disabled may be retired and receive a disability pension. The 5-year service requirement is waived if the disability is service-connected.
6. **Final Average Compensation (FAC).** A member's final average compensation is the average of the 3 highest consecutive years of salary during eligible employment.
7. **Service Retirement Amount.** For payment periods during the retired member's lifetime 103% times (i) minus (ii) where:
 - (i) means 1.85 percent of the FAC multiplied by years of credited service, and
 - (ii) means 1.65 percent of the portion of VRS FAC in excess of \$1,200, multiplied by applicable years of creditable Virginia service; provided if the member is younger than age 65 and if creditable Virginia service is less than 30 years, the result of such multiplication shall be reduced for each month before the earlier of
 - (1) attainment of age 65; and
 - (2) the date when 30 years of service would have been completed.

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2014
MEMBERS HIRED AFTER JULY 1, 1988 BUT BEFORE JULY 1, 2001
ERFC

Service Retirement Amount (Continued).

The reduction shall be one-half of 1% for each of the first 60 months and four-tenths of one percent for each month beyond 60 months, if any.

For payment periods, if any, before the age the member becomes eligible for full Social Security benefits, an additional temporary benefit equal to 1.00 percent of the FAC multiplied by years of credited service.

8. **Reduced Service Retirement Amount after 25 Years Service.** Service Retirement amount reduced to reflect retirement age younger than age 55.
9. **Reduced Service Retirement Amount after 5-24 Years Service.** For payment periods during the retired member's lifetime, the Service Retirement amount payable at age 65 reduced to reflect retirement age younger than age 65. For payment periods before the age the member becomes eligible for full Social Security benefits, an additional temporary benefit equal to the Service Retirement temporary benefit reduced to reflect retirement age younger than age 65.
10. **Deferred Retirement Amount.** Calculated in the same manner as reduced service retirement.
11. **Death-in-Service Benefit Amount.** If the member is eligible for a service or reduced service retirement then an eligible named beneficiary will receive such benefits reduced based upon an Option A (in the case of a spouse or an ex-spouse subject to a DRO) or Option B (in case of another eligible beneficiary) election. If not, the eligible named beneficiary will receive an amount equal to 103% times a lifetime pension equal of 0.25% of the FAC multiplied by years of credited service, and also reduced in connection with an Option A or Option B election. Credited service shall be increased by the time period from the date of death to the date when the member would have reached service retirement with a minimum of 10 years of service used, provided the death was service-connected. If a named beneficiary is not eligible for either of these types of benefits, the named beneficiary will receive a refund of the member's accumulated contributions.

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2014
MEMBERS HIRED AFTER JULY 1, 1988 BUT BEFORE JULY 1, 2001
ERFC

12. **Disability Retirement Amount.** The amount is 103% times a lifetime pension equal to 0.25 percent of the FAC multiplied by years of credited service. Credited service shall be increased by the time period from disability retirement to the date when the member would have reached the service retirement date. The minimum pension payable is 2.5 percent of FAC.
13. **Post-Retirement Increases.** The amount of the monthly benefit is adjusted each March 31, by 3% compounded annually, beginning with the March 31 which is more than three full months after the member's effective retirement date. Pensions of members that retire in the immediately preceding calendar year are increased by 1.489% (one-half a year's increase).
14. **Member Contributions.** Effective July 1, 2012, members contribute 3% of their salaries. Interest credits are 5% annually. If a member leaves covered employment before becoming eligible to retire, accumulated contributions are returned upon request. Members who receive a refund of contributions and are later rehired become members of ERFC 2001.
15. **Lifetime Level Benefit (for Retirements after July 1, 2004).** Members are eligible for a lifetime level benefit (LLB) that is calculated by determining the annuitized value of the greater of their accumulated contribution balance or the present value of the currently provided benefit.
16. **Optional Forms of Payment.**
- Option A: 100% Joint and Survivor benefit. Benefit is 85% of the straight life amount adjusted for the difference in age between the retiree and beneficiary. The maximum benefit is 94% of the straight life amount.
 - Option B: 50% Joint and Survivor benefit. Benefit is 91% of the straight life amount adjusted for the difference in age between the retiree and beneficiary. The maximum benefit is 97% of the straight life amount.
 - Option C: 10 years Certain and Life. Benefit is 96% of the straight life amount.
 - Option D: Single sum payment not exceeding member's accumulated contribution balance, plus a single life annuity actuarially reduced from the pension amount otherwise payable. Actuarial equivalent factors are described on page G-16.

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2014
ALTERNATE BENEFITS AVAILABLE TO MEMBERS
WITH SOME SERVICE BEFORE JULY 1, 1988

Service Retirement: Alternate Amount After Full Social Security Age. A member with service before 7/1/88 may elect, at time of retirement, to receive an alternate benefit amount for payment periods after full Social Security age. The *Alternative Guarantee* amount is the amount that would have been received after the individual reached eligibility for full Social Security benefits under the Old Plan (pre – July 1, 1988) formulas. The amount is 103% of the total of:

- (i) the amount payable under June 30, 1987 benefit provisions,
- (ii) plus, if the retiring member is younger than full Social Security age and if creditable Virginia service is less than 30 years, 1.65 percent of VRS average final compensation in excess of \$1,200, multiplied by years of creditable Virginia service, and further multiplied by a certain percent based upon the number of months that retirement occurs before reaching the earlier of the above two conditions; such percent is one half of one percent for each of the first 60 such months and four-tenths of one percent for each of the next 60 such months, if any.

Reduced Service Retirement: Alternate Amount with 25 Years or more Years of Service. By election at time of retirement, such a member may elect to receive 103% of the following combination of benefits:

To age 55, 2.85 percent of the 3-year average annual salary multiplied by years of credited service, then actuarially reduced to reflect retirement age younger than age 55; and

From age 55 to 65, the amount to age 55 reduced by: 1.65 percent of the portion of VRS average final compensation in excess of \$1,200, multiplied by applicable years of creditable Virginia service; provided if creditable Virginia service is less than 30 years, the result of such multiplication shall be actuarially reduced for each month before the earlier of (1) attainment of age 65; and (2) the date when 30 years service would have been completed; and

From age 65 for life, the amount payable at age 65 according to June 30, 1987 provisions or the amount payable at age 65 according to July 1, 1988 provisions.

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2014
MEMBERS HIRED JULY 1, 2001 OR LATER
ERFC 2001

1. **Service Retirement Eligibility.** A member may retire at age 60 with 5 or more years of credited service, or after 30 years of credited service regardless of age.
2. **Deferred Retirement Eligibility.** Any member with 5 or more years of credited service that terminates employment prior to the service retirement date, will be eligible to receive a deferred vested pension commencing at age 60, provided accumulated contributions are left on deposit with the Plan.
3. **Death Benefit Eligibility.** Any member with 5 or more years of credited service that dies before beginning to receive a pension will have benefits payable to the named beneficiary.
4. **Final Average Compensation (FAC).** A member's Final Average Compensation is the average of the 3 highest years of salary during eligible employment.
5. **Service Retirement Pension.** The amount is a lifetime pension equal to 0.8% (eight-tenths of one percent) of FAC at retirement multiplied by years of credited service. If necessary, the pension will be increased to make the reserve value of the pension equal to the member's accumulated contributions as of the retirement effective date.
6. **Deferred Retirement Pension.** The amount is a lifetime pension equal to 0.8% (eight-tenths of one percent) of FAC at termination multiplied by years of credited service. If necessary, the pension will be increased to make the reserve value of the pension equal to the member's accumulated contributions as of the effective retirement date.

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2014
MEMBERS HIRED JULY 1, 2001 OR LATER
ERFC 2001

7. **Survivor Death Benefit.** The amount is a lifetime pension equal to 0.8% (eight-tenths of one percent) of FAC multiplied by years of credited service at the date of death. If necessary, the pension will be increased to make the reserve value of the pension equal to the member's accumulated contributions as of the date of death. The pension will be adjusted in accordance with an Option A (in the case of a spouse or an ex-spouse subject to a DRO) or Option B (in case of another eligible beneficiary) election payable immediately unless the member did not reach the service retirement eligibility prior to death, in which case the pension is reduced for each month that the member was younger than age 60 on the date of death in the following manner:
- a. one-half of 1% for each of the first 60 months and four-tenths of one percent for each month beyond 60 months (the number of months used for reduction is not to exceed the difference between the member's credited service at death and 30 years).
8. **Cost-of-Living Adjustments.** The amount of the monthly benefit is adjusted each March 31st, by 3% compounded annually, beginning with the March 31st which is more than three full months after the member's effective retirement date. Pensions of members that retire in the immediately preceding calendar year are increased by 1.489% (one-half a year's increase).
9. **Members' Contributions.** Effective July 1, 2012, members contribute 3% of their salaries. Interest credits are 5% annually. If a member leaves covered employment before becoming eligible to retire, accumulated contributions are returned upon request.
10. **Optional Methods of Payment.** Before the effective retirement date, a retiring member may elect one of the following options:
- Option A.** 100% Joint and Survivor benefit. Benefit is 85% of the straight life amount adjusted for the difference in age between the retiree and beneficiary. The maximum benefit is 94% of the straight life amount.
 - Option B.** 50% Joint and Survivor benefit. Benefit is 91% of the straight life amount adjusted for the difference in age between the retiree and beneficiary. The maximum benefit is 97% of the straight life amount.
 - Option C.** 10 years Certain and Life. Benefit is 96% of the straight life amount.

**SAMPLE BENEFIT COMPUTATION
FOR *ERFC* MEMBER RETIRING JUNE 30, 2014**

Data:

A.	<u>7/1/1959</u>	Date of Birth
B.	<u>7/1/2014</u>	Effective Date
C.	<u>7/1/1986</u>	Membership Date
D.	<u>28.00</u>	ERFC Credited Service
E.	<u>28.00</u>	VRS Creditable Service
F.	<u>55.00</u>	Age
G.	<u>Service</u>	Retirement Type
H.	<u>\$60,000.00</u>	3-Year Average Salary
I.	<u>\$60,000.00</u>	5-Year Average Salary

***ERFC* Monthly Benefit Calculation**

Lifetime Portion of Full Service Benefit

J. <i>ERFC</i> Formula Benefit: $1.85\% \times 28 \text{ yrs.} \times \$60,000 =$	\$ 31,080.00
K. minus VRS Adjustment of: $1.65\% \times 28 \text{ yrs.} \times (\$60,000 - \$1,200) \times 88\% =$ (88% is the VRS Early Service Retirement Reduction Factor for 2 years prior to the earlier of age 65 or 30 years of service)	<u>23,905.73</u>
L. Sub Total	7,174.27
M. plus additional 3% benefit adjustment	<u>215.23</u>
N. Total of Lifetime Portion	7,389.50

Additional Temporary Benefit until age SSRA (Social Security Retirement Age)

O. Temporary Benefit Formula: $1\% \times 28 \text{ yrs.} \times \$60,000 =$	16,800.00
P. plus additional 3% benefit adjustment	<u>504.00</u>
Q. Total of Additional Temporary Benefit	17,304.00
R. Monthly benefit effective 06/30/2014 at age 55 payable until SSRA, $(N + Q)/12 =$	\$ 2,057.79
S. Monthly benefit effective 07/01/2025 at SSRA payable for life, $N/12 =$	\$ 615.79

The above computation does not reflect the alternative “guarantee” benefit which this member might elect. Members are eligible for a Lifetime Level Benefit (LLB) that is calculated by determining the annuitized value of the greater of their accumulated contribution balance or the present value of the currently provided benefit.

**SAMPLE BENEFIT COMPUTATION
FOR *ERFC 2001* MEMBER**

Data:

A.	<u>7/1/1969</u>	Date of Birth
B.	<u>7/1/2029</u>	Effective Date
C.	<u>7/1/2001</u>	Membership Date
D.	<u>28.00</u>	ERFC Credited Service
E.	<u>60.00</u>	Age
F.	<u>Service</u>	Retirement Type
G.	<u>\$60,000.00</u>	3 -Year Average Salary

***ERFC 2001* Monthly Benefit Calculation**

Lifetime Monthly Benefit

ERFC 2001 Formula Benefit: $0.80\% \times 28 \text{ yrs.} \times \$60,000 / 12 = \$1,120.00$

SECTION D

FINANCIAL INFORMATION

SUMMARY OF FINANCIAL INFORMATION
DECEMBER 31, 2014

Revenues and Expenditures

	December 31	
	2014	2013
REVENUES:		
a. Member Contributions	\$ 40,080,259	\$ 38,897,466
b. Employer Contributions	74,368,856	70,096,330
c. Donated Fixed Assets	0	0
d. Investment Return		
1. Interest and Dividends	41,849,589	41,121,366
2. Net Appreciation	65,092,239	207,448,235
3. Investment Expense	(13,587,309)	(11,468,759)
4. Net Securities Lending	306,813	132,984
5. Real Estate	8,575,991	1,649,407
6. Miscellaneous	20,272	54,441
7. Total Investment Return	102,257,595	238,937,674
e. Total Revenues	216,706,710	347,931,470
EXPENDITURES:		
a. Refunds of Member Contributions	5,791,693	5,396,068
b. Retirement Benefits Paid	161,143,201	160,464,591
c. Administrative Expense	3,952,206	3,856,763
d. Total Expenditures	170,887,100	169,717,422
RESERVE INCREASE:		
Total Revenues Minus Total Expenditures	\$45,819,610	\$178,214,048

Market Value of Assets

	December 31	
	2014	2013
Invested Assets		
Bonds	\$ 130,186,834	\$ 156,161,251
Stocks		
a. Common	635,049,461	638,992,882
b. Preferred	752,521	2,302,307
Real Estate	164,948,821	159,270,286
Global Asset Allocation	323,376,419	313,192,302
Hedge Fund of Funds	171,057,019	166,525,089
Private Equity	40,390,737	26,884,430
Commingled Funds	634,292,661	589,399,906
Total Invested Assets	2,100,054,473	2,052,728,453
Short-term Investments and Cash	218,977,389	113,374,558
Receivables and Pre-Paid Expenses	3,867,827	3,709,072
Other Assets (furniture and equipment)	41,025	28,815
Total Assets	2,322,940,714	2,169,840,898
Liabilities	176,399,425	69,119,219
Net Assets	\$2,146,541,289	\$2,100,721,679

PORTFOLIO COMPOSITION AT MARKET VALUE

The Market Value of the Portfolio was reported to the Actuary as follows:

	Year Ended December 31			
	2014		2013	
	Value	% of Total	Value	% of Total
Bonds	\$ 130,186,834	6.1 %	\$ 156,161,251	7.4 %
Stocks				
a. Common	635,049,461	29.5 %	638,992,882	30.4 %
b. Preferred	752,521	0.0 %	2,302,307	0.1 %
Real Estate	164,948,821	7.7 %	159,270,286	7.6 %
Commingled Funds	634,292,661	29.5 %	589,399,906	28.1 %
Hedge Fund of Funds	171,057,019	8.0 %	166,525,089	7.9 %
Private Equity	40,390,737	1.9 %	26,884,430	1.3 %
Global Asset Allocation / Better Beta	323,376,419	15.1 %	313,192,302	14.9 %
Net Short-Term Investments and Cash	42,577,964	2.0 %	44,255,339	2.1 %
Receivables, Pre-Paid Expenses and Other	3,908,852	0.2 %	3,737,887	0.2 %
Total Assets	\$2,146,541,289	100.0 %	\$2,100,721,679	100.0 %

In performing an actuarial valuation, values must be determined for the assets held by the System on the valuation date. This value may be the current market value, or a value produced by a smoothing formula which recognizes the long-term validity of market value without overreacting to the marketplace's short-term moods.

The value used in the actuarial valuation may thus differ from the value used in the System's financial statements. This does not mean that one is "right" and the other is "wrong;" each is appropriate for the purpose for which it is used.

A smoothing formula has been in use for ERFC valuations since 1986, which in its present form is illustrated on page D-3. In the December 31, 2005 valuation, a new requirement was instituted to prevent unreasonably large differences between the market value and the funding value of assets. Currently, the recognized assets must always be between 75% and 125% of the market value (see page D-3).

DEVELOPMENT OF FUNDING VALUE OF RETIREMENT SYSTEM ASSETS

Year Ended December 31:	2014#	2015	2016	2017	2018
A. Funding Value Beginning of Year	\$2,029,004,521	\$2,123,910,320			
B. Market Value End of Year	2,146,541,289				
C. Market Value Beginning of Year	2,100,721,679				
D. Non-Investment Net Cash Flow	(52,485,779)				
E. Investment Return Assumed Rate:	7.5%				
1. Market Total: B-C-D	98,305,389				
2. Amount for Immediate Recognition	150,207,122				
3. Amount for Phased-in Recognition: (E1-E2)	(51,901,733)				
F. Phased-In Recognition of Investment Return:					
1. Current year: 0.20 x E3	(10,380,347)				
2. First Prior Year	18,413,301	(10,380,347)			
3. Second Prior Year	19,744,377	18,413,301	(10,380,347)		
4. Third Prior Year	(30,576,304)	19,744,377	18,413,301	(10,380,347)	
5. Fourth Prior year	(16,571)	(30,576,302)	19,744,377	18,413,301	\$ (10,380,345)
6. Total Phased-In	(2,815,544)	(2,798,971)	27,777,331	8,032,954	(10,380,345)
G. Funding Value End of Year:					
G1. Preliminary Funding Value End of Year: A+D+E2+F6	2,123,910,320				
G2. Upper Corridor Limit: 125% x B	2,683,176,611				
G3. Lower Corridor Limit: 75% x B	1,609,905,967				
G4. Funding Value End of Year	2,123,910,320				
H. Actual/Projected Difference Between Market Value and Funding Value	22,630,969	25,429,940	(2,347,391)	(10,380,345)	0
I. Market Rate of Return	4.7%				
J. Ratio of Funding Value to Market Value	98.9%				

Reflects collapsing of bases for future gains and losses implemented in 2010 valuation.

The Funding Value of Assets recognizes assumed investment return (line E2) fully each year. Differences between actual and assumed investment return (line E3) are phased in over a closed 5-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than Market Value. The Funding Value of Assets is *unbiased* with respect to Market Value. If assumed rates are exactly realized for 4 consecutive years, Funding Value will become equal to Market Value.

FUNDING VALUE HISTORY

Year Ended December 31:	2010	2011 [#]	2012 [#]	2013 [#]
A. Funding Value Beginning of Year	\$1,769,539,999	\$1,822,603,363	\$1,866,952,015	\$1,935,292,175
B. Market Value End of Year	1,822,537,079	1,744,597,088	1,922,507,631	2,100,721,679
C. Market Value Beginning of Year	1,654,434,106	1,822,537,079	1,744,597,088	1,922,507,631
D. Non-Investment Net Cash Flow	(60,475,118)	(59,521,663)	(58,633,969)	(56,866,863)
E. Investment Return Assumed Rate:	7.5%	7.5%	7.5%	7.5%
E1. Market Total: B-C-D	228,578,091	(18,418,328)	236,544,512	235,080,911
E2. Amount for Immediate Recognition	130,447,683	134,463,190	137,822,627	143,014,406
E3. Amount for Phased-in Recognition: (E1-E2)	98,130,408	(152,881,518)	98,721,885	92,066,505
F. Phased-in Recognition of Investment Return:				
F1. Current year: 0.20 x E3	19,626,082	(30,576,304)	19,744,377	18,413,301
F2. First Prior Year	39,407,858	(16,571)	(30,576,304)	19,744,377
F3. Second Prior Year	(99,172,171)	0	(16,571)	(30,576,304)
F4. Third Prior Year	1,550,155	0	0	(16,571)
F5. Fourth Prior year	21,678,875	0	0	0
F6. Total Recognized Investment Gain or Loss	(16,909,201)	(30,592,875)	(10,848,498)	7,564,803
G. Funding Value End of Year:				
G1. Preliminary Funding Value End of Year: A+D+E2+F6	1,822,603,363	1,866,952,015	1,935,292,175	2,029,004,521
G2. Upper Corridor Limit: 125% x B	2,278,171,349	2,180,746,360	2,403,134,539	2,625,902,099
G3. Lower Corridor Limit: 75% x B	1,366,902,809	1,308,447,816	1,441,880,723	1,575,541,259
G4. Funding Value End of Year	1,822,603,363	1,866,952,015	1,935,292,175	2,029,004,521
H. Actual/Projected Difference Between Market Value and Funding Value	(66,284)	(122,354,927)	(12,784,544)	71,717,158
I. Market Rate of Return	14.1%	(1.0)%	13.8%	12.4%
J. Ratio of Funding Value to Market Value	100.0%	107.0%	100.7%	96.6%

[#] Reflects collapsing of bases for future gains and losses implemented in 2010 valuation.

SECTION E

COVERED MEMBER DATA

ERFC MEMBERS
WOMEN ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2014
BY ATTAINED AGE AND YEARS OF SERVICE

Age Group	Years of Service to Valuation Date							Totals		Average
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	No.	Salary	
30-34			2					2	\$ 131,465	\$65,733
35-39	3	18	146	71				238	17,247,122	72,467
40-44	4	50	171	320	40			585	46,553,158	79,578
45-49	6	45	160	269	194	31	2	707	57,361,696	81,134
50-54	5	20	151	246	192	168	22	804	64,692,474	80,463
55-59	2	18	137	344	234	120	43	898	69,683,885	77,599
60	1	2	40	73	58	31	6	211	16,349,374	77,485
61		2	34	79	37	21	8	181	13,777,478	76,119
62		2	32	68	55	24	5	186	13,717,635	73,751
63		2	27	71	33	28	12	173	13,105,701	75,755
64		1	17	63	41	12	4	138	10,748,750	77,889
65			17	57	28	20	9	131	10,073,761	76,899
66			6	37	25	13	6	87	6,323,622	72,685
67		1	13	18	8	9	3	52	3,849,821	74,035
68			6	14	13	11	1	45	3,254,597	72,324
69			1	5	14	4	1	25	2,161,189	86,448
70			2	8	3	3		16	988,741	61,796
71			1	5	4	2	1	13	983,659	75,666
72			1	3	3	1	5	13	1,192,916	91,763
73					2	2	4	8	572,143	71,518
74			1	2	4		3	10	685,686	68,569
75 & Over				4	2	4		10	540,010	54,001
Totals	21	161	965	1,757	990	504	135	4,533	\$353,994,883	\$78,093

While not used in the financial computations the following group averages are computed and shown because of their general interest.

Age: 53.5 years

Service: 18.6 years

Annual Pay: \$78,093

ERFC MEMBERS
MEN ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2014
BY ATTAINED AGE AND YEARS OF SERVICE

Age Group	Years of Service to Valuation Date							Totals		Average
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	No.	Salary	
30-34			2					2	\$ 103,700	\$51,850
35-39		2	36	19				57	4,704,821	82,541
40-44		2	52	149	20			223	19,455,492	87,244
45-49	1	2	44	135	103	7		292	26,227,865	89,821
50-54	1	3	39	85	78	57	10	273	24,487,391	89,697
55-59			20	60	47	39	12	178	16,392,612	92,093
60			1	16	7	9	1	34	3,351,034	98,560
61			2	12	6	4	3	27	2,348,764	86,991
62			3	10	10	4	2	29	2,756,748	95,060
63			2	12	5	2	1	22	1,999,973	90,908
64			2	6	2	2	4	16	1,437,713	89,857
65			3	7	4	3	1	18	1,574,430	87,468
66			1	6	4	2	1	14	1,287,142	91,939
67			4	1	2			7	673,651	96,236
68			1	2	1			4	328,960	82,240
69			1	3	2			6	607,454	101,242
70			3		2	1		6	532,755	88,793
71					2		1	3	289,538	96,513
72			3	2	1			6	476,090	79,348
73				1				1	93,638	93,638
74			1					1	70,687	70,687
75 & Over				1		1		2	135,825	67,913
Totals	2	9	220	527	296	131	36	1,221	\$109,336,283	\$89,547

While not used in the financial computations the following group averages are computed and shown because of their general interest.

Age: 50.9 years
Service: 19.2 years
Annual Pay: \$89,547

ERFC 2001 MEMBERS
WOMEN ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2014
BY ATTAINED AGE AND YEARS OF SERVICE

Age Group	Years of Service to Valuation Date							Totals		Average
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	No.	Salary	
15-19	1							1	\$ 20,615	\$20,615
20-24	469							469	20,626,566	43,980
25-29	2,195	204						2,399	120,846,112	50,374
30-34	1,077	1,068	160					2,305	129,228,722	56,065
35-39	600	502	481					1,583	95,245,760	60,168
40-44	596	403	276					1,275	74,933,255	58,771
45-49	616	435	233					1,284	71,856,462	55,963
50-54	559	517	330					1,406	73,898,781	52,560
55-59	269	416	382					1,067	59,087,253	55,377
60	27	66	71					164	9,923,516	60,509
61	31	50	78					159	9,417,052	59,227
62	23	39	48					110	6,292,911	57,208
63	13	38	47					98	5,901,110	60,215
64	11	23	37					71	4,159,014	58,578
65	6	28	41					75	4,702,199	62,696
66	6	18	29					53	2,990,838	56,431
67	4	13	11					28	1,454,052	51,930
68	3	4	13					20	1,276,703	63,835
69	3	4	3					10	553,989	55,399
70	1	6	5					12	607,238	50,603
71		3	4					7	561,892	80,270
72	2	2	1					5	256,886	51,377
73		3						3	99,857	33,286
Totals	6,512	3,842	2,250					12,604	\$693,940,783	\$55,057

While not used in the financial computations the following group averages are computed and shown because of their general interest.

Age: 40.2 years

Service: 5.5 years

Annual Pay: \$55,057

ERFC 2001 MEMBERS
MEN ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2014
BY ATTAINED AGE AND YEARS OF SERVICE

Age Group	Years of Service to Valuation Date							Totals		Average
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	No.	Salary	
20-24	53							53	\$ 2,205,469	\$41,613
25-29	418	30						448	20,866,906	46,578
30-34	329	259	33					621	34,302,442	55,237
35-39	151	182	188					521	33,308,803	63,932
40-44	119	102	138					359	24,522,367	68,307
45-49	87	96	108					291	20,332,366	69,871
50-54	91	92	74					257	18,012,621	70,088
55-59	69	76	62					207	14,237,459	68,780
60	15	9	12					36	2,389,653	66,379
61	6	12	14					32	2,218,556	69,330
62	5	18	8					31	2,191,480	70,693
63	8	7	8					23	1,436,976	62,477
64	8	7	11					26	1,629,099	62,658
65	8	10	6					24	1,399,563	58,315
66	2	7	7					16	1,107,112	69,195
67	4	3	4					11	580,661	52,787
68	5	4	3					12	757,146	63,096
69	1	2						3	195,215	65,072
70	3	2	1					6	345,683	57,614
71			5					5	321,656	64,331
72	1	2	1					4	228,107	57,027
73		1	3					4	249,355	62,339
74	1	1						2	113,558	56,779
75 & Over			2					2	119,464	59,732
Totals	1,384	922	688					2,994	\$183,071,717	\$61,146

While not used in the financial computations the following group averages are computed and shown because of their general interest.

Age: 40.6 years

Service: 6.1 years

Annual Pay: \$61,146

ALL ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2014
BY ATTAINED AGE AND YEARS OF SERVICE

Age Group	Years of Service to Valuation Date							Totals		Average
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	No.	Salary	
15-19	1							1	\$ 20,615	\$20,615
20-24	522							522	22,832,035	43,740
25-29	2,613	234						2,847	141,713,018	49,776
30-34	1,406	1,327	197					2,930	163,766,329	55,893
35-39	754	704	851	90				2,399	150,506,506	62,737
40-44	719	557	637	469	60			2,442	165,464,272	67,758
45-49	710	578	545	404	297	38	2	2,574	175,778,389	68,290
50-54	656	632	594	331	270	225	32	2,740	181,091,267	66,092
55-59	340	510	601	404	281	159	55	2,350	159,401,209	67,830
60	43	77	124	89	65	40	7	445	32,013,577	71,941
61	37	64	128	91	43	25	11	399	27,761,850	69,579
62	28	59	91	78	65	28	7	356	24,958,774	70,109
63	21	47	84	83	38	30	13	316	22,443,760	71,025
64	19	31	67	69	43	14	8	251	17,974,576	71,612
65	14	38	67	64	32	23	10	248	17,749,953	71,572
66	8	25	43	43	29	15	7	170	11,708,714	68,875
67	8	17	32	19	10	9	3	98	6,558,185	66,920
68	8	8	23	16	14	11	1	81	5,617,406	69,351
69	4	6	5	8	16	4	1	44	3,517,847	79,951
70	4	8	11	8	5	4		40	2,474,417	61,860
71		3	10	5	6	2	2	28	2,156,745	77,027
72	3	4	6	5	4	1	5	28	2,153,999	76,929
73		4	3	1	2	2	4	16	1,014,993	63,437
74	1	1	2	2	4		3	13	869,931	66,918
75 & Over			2	5	2	5		14	795,299	56,807
Totals	7,919	4,934	4,123	2,284	1,286	635	171	21,352	\$1,340,343,666	\$62,774

While not used in the financial computations the following group averages are computed and shown because of their general interest.

	<u>ERFC</u>	<u>ERFC 2001</u>	<u>Total</u>
Age:	53.0 years	40.3 years	43.7 years
Service:	18.7 years	5.6 years	9.2 years
Annual Pay:	\$80,523	\$56,226	\$62,774

ACTIVE MEMBERS BY YEARS OF SERVICE
DECEMBER 31, 2014

Service Years	Number of Members			Annual Pays	
	Males	Females	Total	Total	Average
0	319	1,300	1,619	\$ 75,907,277	\$46,885
1	286	1,507	1,793	88,086,499	49,128
2	305	1,425	1,730	88,533,058	51,175
3	265	1,324	1,589	83,074,767	52,281
4	211	977	1,188	64,085,591	53,944
5	135	677	812	43,991,892	54,177
6	168	786	954	55,210,704	57,873
7	189	883	1,072	61,254,500	57,140
8	204	799	1,003	60,619,611	60,438
9	235	858	1,093	68,094,680	62,301
10	226	771	997	64,498,765	64,693
11	181	632	813	56,176,676	69,098
12	161	545	706	48,636,963	68,891
13	164	665	829	59,994,201	72,369
14	176	602	778	55,966,925	71,937
15	171	517	688	51,442,147	74,771
16	117	450	567	42,757,582	75,410
17	92	316	408	31,937,574	78,278
18	73	293	366	29,970,484	81,887
19	74	181	255	22,042,426	86,441
20	85	255	340	29,295,528	86,163
21	87	224	311	26,928,024	86,585
22	39	162	201	17,810,356	88,609
23	34	153	187	16,622,130	88,888
24	51	196	247	22,344,276	90,463
25	31	115	146	13,211,310	90,488
26	29	133	162	14,527,062	89,673
27	18	86	104	9,694,041	93,212
28	29	83	112	10,876,375	97,110
29	24	87	111	10,864,076	97,875
30 & Up	36	135	171	15,888,166	92,913
Totals	4,215	17,137	21,352	\$1,340,343,666	\$62,774

PERSONS IN VALUATIONS - COMPARATIVE STATEMENT

Active Members

Valuation Date	Number			Average Pay	Annual Increase In Average Pay		Price Inflation (CPI-U) Last Year
	ERFC	ERFC 2001	Total		Last	Last	
					Year	5 Years	
2/28/1974	7,429		7,429	\$13,087			
2/28/1975	8,075		8,075	13,693			
2/28/1976	8,609		8,609	15,929			
2/29/1980	8,990		8,990	18,901			
6/30/1983	9,359		9,359	24,104			
6/30/1985	9,596		9,596	26,229			
6/30/1986	10,084		10,084	27,523	4.9 %		1.8 %
6/30/1987	10,560		10,560	28,887	5.0 %		3.7 %
6/30/1988	10,727		10,727	31,784	10.0 %		4.0 %
6/30/1989	11,019		11,019	33,540	5.5 %		5.2 %
6/30/1990	11,539		11,539	35,702	6.4 %	6.4 %	4.7 %
6/30/1991	12,313		12,313	36,699	2.8 %	5.9 %	4.7 %
6/30/1992	12,308		12,308	36,356	(0.9)%	4.7 %	3.1 %
6/30/1993	12,330		12,330	36,539	0.5 %	2.8 %	3.0 %
6/30/1994	12,873		12,873	37,365	2.3 %	2.2 %	2.5 %
6/30/1995	13,287		13,287	39,215	5.0 %	1.9 %	3.0 %
6/30/1996	13,110		13,110	40,508	3.3 %	2.0 %	2.8 %
6/30/1997	13,473		13,473	41,098	1.5 %	2.5 %	2.3 %
6/30/1998	13,806		13,806	42,210	2.7 %	2.9 %	1.7 %
6/30/1999	14,449		14,449	43,326	2.6 %	3.0 %	2.0 %
6/30/2000	15,050		15,050	45,112	4.1 %	2.8 %	3.7 %
6/30/2001	15,955		15,955	47,628	5.6 %	3.3 %	3.2 %
6/30/2002	15,363	711	16,074	48,635	2.1 %	3.4 %	1.1 %
6/30/2003	13,934	3,804	17,738	48,850	0.4 %	3.0 %	2.1 %
12/31/2004	11,856	6,864	18,720	52,234	6.9 %	3.8 %	3.3 %
12/31/2005	10,895	8,186	19,081	55,040	5.4 %	4.1 %	3.4 %
12/31/2006	10,065	9,306	19,371	57,396	4.3 %	3.8 %	2.5 %
12/31/2007	9,350	10,249	19,599	59,260	3.2 %	4.0 %	4.1 %
12/31/2008	8,791	10,940	19,731	61,383	3.6 %	4.7 %	0.1 %
12/31/2009	8,417	11,474	19,891	60,736	(1.1)%	3.1 %	2.7 %
12/31/2010	7,900	12,241	20,141	59,148	(2.6)%	1.4 %	1.5 %
12/31/2011	7,353	13,623	20,976	59,448	0.5 %	0.7 %	3.0 %
12/31/2012	6,801	14,718	21,519	60,297	1.4 %	0.3 %	1.7 %
12/31/2013	6,221	15,422	21,643	61,004	1.2 %	(0.1)%	1.5 %
12/31/2014	5,754	15,598	21,352	62,774	2.9 %	0.7 %	0.8 %

PERSONS IN VALUATIONS - COMPARATIVE STATEMENT

Retired Lives

Valuation Date	Number	Average Annual Benefit	Total Benefits	Active Member Payroll	Total Benefits as % of Payroll
2/28/1974	-	-	-	\$ 97,221,025	
2/28/1975	195	\$ 3,463	\$ 675,344	110,571,258	0.61%
2/28/1976	456	3,270	1,491,310	137,131,905	1.09%
2/29/1980	1,012	4,238	4,288,395	169,924,320	2.52%
6/30/1983	1,448	5,136	7,437,571	225,592,433	3.30%
6/30/1985	1,823	6,220	11,339,462	251,691,261	4.51%
6/30/1986	2,047	6,614	13,539,032	277,545,288	4.88%
6/30/1987	2,232	7,007	15,639,820	305,050,734	5.13%
6/30/1988	2,425	7,629	18,502,289	340,945,603	5.43%
6/30/1989	2,679	8,671	23,230,719	369,574,756	6.29%
6/30/1990	2,932	9,354	27,428,027	411,970,032	6.66%
6/30/1991	3,209	10,146	32,559,349	451,872,668	7.21%
6/30/1992	3,311	10,960	36,289,308	447,473,936	8.11%
6/30/1993	3,486	11,307	39,417,339	450,530,273	8.75%
6/30/1994	3,775	11,285	42,600,996	480,995,439	8.86%
6/30/1995	3,927	11,529	45,274,131	521,044,021	8.69%
6/30/1996	4,225	11,843	50,036,473	531,060,397	9.42%
6/30/1997	4,478	11,908	53,322,514	553,709,472	9.63%
6/30/1998	4,773	12,156	58,018,744	582,754,912	9.96%
6/30/1999	5,113	12,383	63,312,850	626,015,364	10.11%
6/30/2000	5,344	13,201	70,548,074	678,937,233	10.39%
6/30/2001	5,766	13,167	75,922,636	759,905,510	9.99%
6/30/2002	6,375	13,645	86,985,606	781,756,005	11.13%
6/30/2003	6,729	14,493	97,522,562	866,501,799	11.25%
12/31/2004	7,430	14,767	110,029,000	977,817,281	11.25%
12/31/2005	7,710	15,077	116,242,812	1,050,216,544	11.07%
12/31/2006	8,029	15,370	123,402,840	1,111,827,576	11.10%
12/31/2007	8,354	15,598	130,307,079	1,161,431,668	11.22%
12/31/2008	8,595	15,631	134,346,260	1,211,140,009	11.09%
12/31/2009	8,772	15,697	137,692,304	1,208,092,606	11.40%
12/31/2010	9,081	15,677	142,366,660	1,191,290,190	11.95%
12/31/2011	9,467	15,707	148,697,364	1,246,973,240	11.92%
12/31/2012	9,788	15,594	152,634,070	1,297,536,507	11.76%
12/31/2013	10,156	15,193	154,304,935	1,320,308,508	11.69%
12/31/2014	10,524	14,893	156,735,926	1,340,343,666	11.69%

Total benefits as a % of payroll are much higher than total contributions as a % of payroll. This is an expected condition in a well-funded plan such as ERFC.

	Average				
	Age at Retirement	Monthly Benefit		Service Credit 2014 Retirees	Age 2014 Retirees
		All Retirees	2014 Retirees		
ERFC Legacy	58.7	\$1,287.29	\$1,399.44	22.2	62.1
ERFC 2001	63.6	348.90	381.18	9.3	64.0

**ORIGINAL BENEFIT FORMULAS (BEFORE JULY 1, 1988)
 RETIREES AND BENEFICIARIES DECEMBER 31, 2014
 BY TYPE OF BENEFIT BEING PAID**

Type of Pension Being Paid	No.	Annual Amounts		
		Payable for Life	Temporary Supplement	Current Benefits
Age and Service - Normal: Straight Life Optional Forms	467	\$ 8,165,449		\$ 8,165,449
Age and Service - Early: Straight Life Optional Forms	317	3,684,694	\$40,494	3,725,188
Age and Service Totals	784	11,850,143	40,494	11,890,637
Duty Disability: Straight Life	7	226,656		226,656
Non-Duty Disability Straight Life	38	391,874		391,874
Age and Service Survivor Beneficiary, Duty Death, and Non-Duty Death	47	479,649		479,649
Other Totals	92	1,098,179		1,098,179
Total Benefits	876	\$12,948,322	\$40,494	\$12,988,816

**BENEFIT FORMULAS (EFFECTIVE JULY 1, 1988)
 RETIREES AND BENEFICIARIES DECEMBER 31, 2014
 BY TYPE OF BENEFIT BEING PAID**

Type of Pension Being Paid	No.	Annual Amounts		
		Payable for Life	Temporary Supplement	Current Benefits
Age and Service - Normal:				
Straight Life	4,973	\$71,706,090	\$29,079,826	\$100,785,916
Optional Forms	289	3,426,433	2,115,136	5,541,569
Age and Service - Early:				
Straight Life	3,466	18,264,660	14,423,732	32,688,392
Optional Forms	134	616,102	504,542	1,120,644
Age and Service Totals	8,862	94,013,285	46,123,236	140,136,521
Duty Disability:				
Straight Life	12	47,293		47,293
Optional Forms	1	1,931		1,931
Non-Duty Disability:				
Straight Life	134	551,740	17,413	569,153
Optional Forms	8	31,287		31,287
Age and Service Survivor Beneficiary, Duty Death, and Non-Duty Death	113	668,411	123,724	792,135
Other Totals	268	1,300,662	141,137	1,441,799
Total Benefits	9,130*	\$95,313,947*	\$46,264,373	\$141,578,320

* Includes benefits split in DROs.

**BENEFIT FORMULAS (EFFECTIVE JULY 1, 2001)
 RETIREES AND BENEFICIARIES DECEMBER 31, 2014
 BY TYPE OF BENEFIT BEING PAID**

Type of Pension Being Paid	No.	Annual Amounts
Age and Service - Normal: Straight Life	454	\$1,918,786
Optional Forms	58	231,647
Age and Service - Early: Straight Life		
Optional Forms		
Age and Service Totals	512	2,150,433
Duty Disability: Straight Life		
Optional Forms		
Non-Duty Disability: Straight Life		
Optional Forms		
Age and Service Survivor: Beneficiary, Duty Death, and Non-Duty Death	6	18,357
Other Totals	6	18,357
Total Benefits	518	\$2,168,790

ORIGINAL BENEFIT FORMULAS (BEFORE JULY 1, 1988)
RETIREES AND BENEFICIARIES DECEMBER 31, 2014
CURRENT ANNUAL BENEFITS - TABULATED BY ATTAINED AGES

Attained Ages	No.	Annual Amount
59	1	\$ 1,985
61	4	20,469
62	2	5,722
63	3	21,408
64	3	25,910
66	2	21,894
68	1	31,716
69	3	49,100
70	2	21,532
71	2	16,182
72	2	21,342
73	5	59,579
74	3	37,563
75	15	181,876
76	22	312,008
77	38	639,469
78	43	897,131
79	59	1,191,465
80-84	244	4,635,177
85-89	236	3,244,710
90 & Up	186	1,552,578
Total	876	\$12,988,816

BENEFIT FORMULAS (EFFECTIVE JULY 1, 1988)
RETIREES AND BENEFICIARIES DECEMBER 31, 2014
CURRENT ANNUAL BENEFITS - TABULATED BY ATTAINED AGES

Attained Ages	No.	Annual Amount
Under 40	3	\$ 8,831
40-44	4	22,480
45	3	14,374
46	1	5,178
47	1	15,340
48	1	860
49	4	60,786
50	5	98,816
51	10	94,296
52	11	210,681
53	10	200,356
54	11	318,216
55	62	1,578,861
56	104	2,394,087
57	135	3,437,702
58	183	4,448,297
59	216	4,845,423
60	257	6,218,300
61	281	6,773,295
62	362	8,554,812
63	415	9,543,929
64	474	10,827,858
65	544	13,256,201
66	554	6,686,326
67	654	7,075,362
68	568	6,203,280
69	447	4,735,945
70-74	1,969	22,641,881
75-79	1,143	13,826,592
80 & Up	698	7,479,955
Totals*	9,130	\$141,578,320

* Includes benefits split in DROs.

ERFC 2001
RETIREES AND BENEFICIARIES DECEMBER 31, 2014
CURRENT ANNUAL BENEFITS - TABULATED BY ATTAINED AGES

Attained Ages	No.	Annual Amount
Under 40	1	\$ 2,639
47	1	3,071
57	1	1,817
58	1	3,536
60	36	168,203
61	38	163,582
62	44	181,555
63	44	176,734
64	46	195,910
65	44	192,982
66	63	271,575
67	61	263,825
68	40	170,442
69	29	127,752
70-74	58	212,319
75-79	9	28,202
80 & Up	2	4,646
Totals	518	\$2,168,790

ORIGINAL BENEFIT FORMULAS (BEFORE JULY 1, 1988)
INACTIVE VESTED MEMBERS DECEMBER 31, 2014
ANNUAL DEFERRED BENEFITS – TABULATED BY ATTAINED AGES

Attained Ages	No.	Annual Amount
61	2	\$ 4,416
62	5	10,510
63	3	9,484
64	3	6,124
Totals*	13	\$30,534

** In addition, there are 11 members whose accumulated contributions exceed the present value of their estimated future benefits. Liabilities for these members were set equal to their accumulated contributions.*

BENEFIT FORMULAS (EFFECTIVE JULY 1, 1988)
INACTIVE VESTED MEMBERS DECEMBER 31, 2014
ANNUAL DEFERRED BENEFITS – TABULATED BY ATTAINED AGES

Attained Ages	No.	Annual Amount
35	2	\$ 3,234
36	33	81,037
37	57	135,703
38	75	185,556
39	74	172,204
40	97	172,342
41	92	177,707
42	103	228,019
43	116	321,612
44	120	281,429
45	105	256,991
46	97	291,034
47	95	265,575
48	84	214,760
49	83	203,208
50	72	179,416
51	76	246,035
52	76	251,659
53	62	216,159
54	65	214,369
55	46	184,772
56	28	122,202
57	39	178,766
58	24	98,380
59	28	98,686
60	27	149,271
61	26	162,077
62	26	90,764
63	17	97,785
64	18	77,460
65 & Up	30	70,071
Totals	1,893	\$5,428,283

ERFC 2001
INACTIVE VESTED MEMBERS DECEMBER 31, 2014
ANNUAL DEFERRED BENEFITS – TABULATED BY ATTAINED AGES

Attained Ages	No.	Annual Amount
27	2	\$ 5,999
28	22	74,913
29	39	134,021
30	67	237,533
31	101	386,698
32	103	400,504
33	153	608,171
34	148	596,964
35	169	662,845
36	118	457,787
37	102	371,245
38	79	302,546
39	65	241,049
40	51	170,828
41	47	174,140
42	33	119,295
43	44	142,462
44	28	86,338
45	27	88,135
46	25	83,104
47	28	105,967
48	27	104,403
49	18	55,882
50	25	78,994
51	23	67,687
52	22	65,490
53	34	93,374
54	35	121,091
55	29	111,722
56	34	102,587
57	28	107,194
58	47	166,152
59	30	100,743
60	9	40,426
61	10	29,187
62	3	11,386
63	7	15,929
64	4	7,443
65 & Over	8	25,253
Totals	1,844	\$6,755,487

SECTION F

**SUMMARY OF RISK MEASURES
BASED ON MARKET VALUE OF ASSETS**

**SUMMARY OF RISK MEASURES
BASED ON MARKET VALUE OF ASSETS**

Actuarial Valuation Date	Funded Ratio	UAAL / Total Payroll	Market Value of Assets / Total Payroll	Total AAL / Total Payroll	Standard Deviation of Investment Return / Total Payroll
12/31/14	78.52 %	0.44	1.60	2.04	17 %

Short term fluctuations in the Risk Measures will occur due to experience, plan changes, and assumption and method changes. Long term expectations are described below.

Funded Ratio: The funded ratio is expected to trend toward 100% by June 30, 2040 under the current 30-year amortization period.

UAAL / Total Payroll: The ratio of the unfunded actuarial accrued liability to payroll is expected to trend toward 0% by June 30, 2040.

Market Value of Assets / Total Payroll: As the funded ratio increases, this ratio is expected to converge to the ratio of Total AAL / Payroll.

Total AAL / Total Payroll: This ratio is expected to grow as the System matures.

Standard Deviation of Investment Return / Total Payroll: This measure illustrates the impact of a one standard deviation change in the investment return as a percent of payroll. Investment return experience other than expected ultimately affects the employer contribution rates. The higher the ratio of this risk metric, the greater the expected volatility in employer contribution rates. Absent changes in the investment policy, this metric is expected to increase as the assets grow to 100% of the AAL. As of December 31, 2014, this risk measure is calculated to be 17% (based on the ten-year annualized standard deviation times the Market Value of Assets divided by the active member payroll).

SECTION G

ACTUARIAL ASSUMPTIONS & MISCELLANEOUS

**SUMMARY OF
ASSUMPTIONS USED FOR ERFC ACTUARIAL VALUATION
ASSUMPTIONS ADOPTED BY THE BOARD OF TRUSTEES
AFTER CONSULTING WITH ACTUARY**

The actuarial assumptions used in making the valuation are shown in this Section of the report. The assumptions were established for the December 31, 2010 actuarial valuation, based upon a study of experience during the period January 1, 2005 to December 31, 2009.

ECONOMIC ASSUMPTIONS

The investment return rate used in making the valuation was 7.5% per year, compounded annually (net after administrative expenses). The real rate of return over wages or the “spread” is defined to be the portion of total investment return which is more than the wage inflation rate. Based upon an assumed wage inflation rate of 3.75%, the 7.5% investment return rate translates to an ***assumed real rate of return over wages of 3.75%***. The assumed real return over prices would be higher.

Pay increase assumptions for individual active members are shown by years of service on page G-9. Part of the pay increase assumption is for merit and/or seniority increase, and the other 3.75% recognizes price inflation and real wage growth.

Price Inflation: No explicit price inflation assumption is needed for this valuation.

The number of active members is assumed to continue at the present number.

Total active member payroll is assumed to increase 3.75% annually in the long term, which is the portion of the individual pay increase assumptions attributable to wage inflation. This assumed increase is recognized in the funding of unfunded actuarial accrued liabilities.

NON-ECONOMIC ASSUMPTIONS

The mortality table used to measure active and retired life mortality was the 1994 Group Annuity Mortality Table set back 3 years for males and 3 year for females. Related values are shown on page G-6 along with the rates used for disabled mortality. Overall, these rates do not include a margin for future improvement.

The probabilities of retirement for members eligible to retire are shown on page G-7.

The probabilities of withdrawal from service, *death-in-service* and *disability* are shown for sample ages on page G-8.

The individual entry age actuarial cost method of valuation was used for determining actuarial accrued liabilities and normal cost. The method determines separate normal costs for *ERFC* and for *ERFC 2001* and blends the results together to produce the normal costs shown on page B-2. This means that in the long run, the normal cost will become the normal cost of *ERFC 2001*, which is slightly higher than the blended figure shown on page B-2.

Unfunded actuarial accrued liabilities are amortized to produce contribution amounts (principal and interest) which are level percent-of-payroll contributions.

Present assets (cash and investments) are valued on a market-related basis effective June 30, 1986. Page D-3 provides specifics. A one-time adjustment toward market was made in connection with the 1990-93 experience study and an additional one-time adjustment set the funding value equal to the market value as of December 31, 2004. An 85%-115% market value corridor was added in the December 31, 2005 valuation. This was adjusted to 75% - 125% in the December 31, 2008 valuation, as requested by the Board.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA).

Adopted: March 21, 2006
Amended: May 28, 2009
Amended: May 17, 2012
Amended: June 27, 2013
Amended: May 29, 2014

ERFC REGULATIONS – FUNDING POLICY AND EMPLOYER CONTRIBUTION RATE

(Applicable to *ERFC* and *ERFC 2001*)

Pursuant to their authority under §15.03 of the *ERFC* Plan Document and §10.03 of the *ERFC 2001* Plan Document, the Trustees have adopted the following regulations governing determination of the Employer contribution rate and implementation of the funding policy pursuant to §§3.05 and 16.03 of the *ERFC* Plan Document and §§3.05 and 11.03 of the *ERFC 2001* Plan Document.

16.03A Purpose of Regulations. The funding policy of the Plan is stated in §16.03 of the *ERFC* Plan Document and §11.03 of the *ERFC 2001* Plan Document. That policy is “to establish and receive contributions which will remain approximately level from generation to generation of citizens and which, when combined with other assets and investment return thereon, will be sufficient to pay benefits when due, while providing a reasonable margin for adverse experience.” Section 3.05 in each Plan Document provides that the employer “shall contribute a percentage of each Member’s Salary, at a rate to be determined by the actuary in accordance with the funding policy set forth in [this Plan Document].” Within the broader context of the stated funding policy, the objectives of the Trustees are:

- (1) To make consistent progress toward 100% funding of the Plan and to maintain 100% funding once it has been attained;
- (2) To stabilize the Employer contribution rate and avoid sharp increases or decreases due to specific events or short-term conditions; and
- (3) To maintain the Plan’s funding in accordance with actuarial standards of practice that apply to public sector plans and with applicable federal, state, and local laws and regulations.

16.03B Frequency of Actuarial Valuations. The actuary shall prepare annual actuarial valuations based upon calendar-year data. Whenever possible, the valuation for a particular year should be presented to the Trustees within the first 120 days of the following calendar year.

16.03C Schedule for Setting the Employer Contribution Rate. The Trustees will determine the Employer contribution rate biennially, in consultation with the actuary, based upon the actuarial valuation for the most recently completed calendar year. The rate shall be set and communicated to the Employer at least 9 months in advance of the effective date so that it will be available for use in the Employer’s budgetary process. Each rate shall remain in effect for two consecutive Fiscal Years. For example, a rate will be set in accordance with this schedule based on the actuarial valuation as of December 31, 2013. It will become effective July 1, 2015, and will remain in effect through June 30, 2017.

16.03D The Employer Contribution Rate. The Employer contribution rate will be set at a level that is expected to:

- (1) pay all normal costs accruing under the Plan during the Fiscal Years for which the rate is effective; and
- (2) amortize any unfunded liabilities over a reasonable period.

16.03E The Amortization Period for Unfunded Liabilities. In the biennial determination of the Employer contribution rate, the amortization period for unfunded liabilities will be set within the parameters permitted by actuarial standards of practice that apply to public sector plans and by applicable federal, state, or local laws and regulations, and shall, if permitted, be based upon level percent of pay. If those standards, laws, and regulations and the other principles stated in Paragraphs 16.03A and 16.03D permit, the amortization period for unfunded liabilities shall be set with the objective that the Plan will be 100% funded by June 30, 2040. In conjunction with actuarial valuations dated December 31, 2019 and later, the Trustees may elect to create a new 20-year amortization schedule for unfunded liabilities arising during that valuation and subsequent valuations, and to continue the amortization of preexisting unfunded liabilities to their scheduled end date. In order to stabilize contributions, the Trustees may from time to time elect to combine separate amortization schedules into a single schedule over the average remaining amortization period being used. Unfunded liabilities associated with benefit changes or assumption changes shall be funded over a period not exceeding 10 years. However, unfunded liabilities arising in conjunction with early retirement incentive programs offered by the Employer after 2013 shall be separately funded over a period not exceeding five future years and shall not be subject to the combining of amortization schedules mentioned elsewhere in this Paragraph 16.03E.

16.03F The Valuation of Plan Assets. The actuarial value of Plan assets shall be determined as a 5-year smoothed market value of assets. The smoothing technique shall fully recognize the assumed return each year. It shall further spread the difference between the actual return and the assumed return in equal installments over the current year and four future years. In the event that the method would result in an actuarial value of assets that is less than 75% of market value or more than 125% of market value, the actuarial value of assets shall be reset to 75% of market value or 125% of market value, as the case may be, and the total difference between market and actuarial value shall be spread over four future years. Based upon consultation with the actuary, the Trustees may combine bases in order to reset the actuarial value to be equal to the market value when the difference between market value and actuarial value is 5% or less of market value.

16.03G The Valuation of Plan Liabilities. The actuarial liabilities of the Plan shall be determined using the entry age actuarial cost method, and an investment return assumption chosen by the Trustees in conjunction with the Plan actuary and investment consultant. The investment return assumptions shall be based upon the long term expected return on assets, although the Trustees may take other factors into account when determining this assumption. The Trustees shall also adopt other assumptions necessary for the valuation based upon the advice of the actuary and the judgment of the Trustees. The Trustees shall cause a study of actuarial experience under the Plan to be performed at least once in each five-year period and shall adjust all assumptions accordingly as deemed necessary for prudent operation of the Plan.

16.03H Overfunding. In the event that the Plan's assets exceed the Plan's liabilities, all amortization schedules other than those related to any post-2013 early retirement incentive programs offered by the Employer shall be considered completed, and the Employer contribution rate will be set based upon the normal cost and the completion of any remaining amortizations due to post-2013 early retirement incentive programs offered by the Employer, without regard to such overfunding. In such event, the Trustees shall review the Plan's asset allocation with a view toward de-risking the portfolio and potentially lowering the investment return assumption. Should such de-risking of the portfolio or future unfavorable experiences cause the unfunded liabilities to arise again, such liabilities shall be funded over a closed period of 20 future years, and shall otherwise be subject to the regulations set forth in Paragraph 16.03E.

SINGLE LIFE RETIREMENT VALUES

STANDARD MORTALITY

Sample Attained Ages	Present Value of \$1 Monthly for Life Increasing 3.0% Annually		Percent Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women	Men	Women
55	\$187.03	\$201.44	0.3213%	0.1734%	28.85	32.99
60	169.63	185.77	0.5581%	0.2919%	24.39	28.31
65	150.45	167.93	1.0147%	0.5832%	20.18	23.82
70	130.51	148.72	1.8034%	1.0764%	16.37	19.65
75	110.33	128.05	2.8481%	1.6506%	12.98	15.78
80	89.95	106.03	4.5171%	2.8366%	9.96	12.22
Ref:	261 x 1.00	262 x 1.00				
	sb 3	sb 3				

DISABLED MORTALITY

Sample Attained Ages	Present Value of \$1 Monthly for Life Increasing 3.0% Annually		Percent Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women	Men	Women
55	\$128.18	\$144.69	3.3740%	2.6550%	17.14	20.34
60	118.67	135.13	4.2210%	2.9790%	15.18	18.04
65	110.09	124.28	4.7460%	3.3300%	13.46	15.71
70	99.71	111.14	5.1730%	3.6990%	11.60	13.27
75	86.55	94.59	5.8940%	4.4280%	9.55	10.66
80	70.31	76.55	7.8960%	6.7140%	7.37	8.16
Ref:	309 x 0.70	310 x 0.90				
	sb 0	sb 0				

PROBABILITIES OF RETIREMENT FOR MEMBERS ELIGIBLE TO RETIRE

Ages	Hired Before 7/1/2001		Hired On or After 7/1/2001		
	Type of Retirement		Age Based	Service	Service Based
	Service	Reduced Service			
45		2.0%			
46		2.0%			
47		2.0%			
48		2.0%			
49		2.0%			
50		2.0%			
51		3.0%			
52		6.0%			
53		8.0%			
54		8.0%			
55	45.0%	9.0%	22.5%	30	22.5%
56	35.0%	4.0%	17.5%	31	17.5%
57	25.0%	4.0%	12.5%	32	12.5%
58	25.0%	4.0%	12.5%	33	12.5%
59	25.0%	4.0%	12.5%	34	12.5%
60	30.0%	8.0%	15.0%	35	15.0%
61	35.0%	9.0%	17.5%	36	17.5%
62	35.0%	15.0%	17.5%	37	17.5%
63	30.0%	18.0%	15.0%	38	35.0%
64	25.0%	18.0%	12.5%	39	50.0%
65	25.0%		12.5%	40 & Up	100.0%
66	25.0%		12.5%		
67	25.0%		25.0%		
68	25.0%		25.0%		
69	20.0%		20.0%		
70	20.0%		20.0%		
71	20.0%		20.0%		
72	20.0%		20.0%		
73	30.0%		30.0%		
74	30.0%		30.0%		
75 & Over	100.0%		100.0%		
Ref:	1891	1893	1892		1894

The age column index does not apply to the service based retirements. In *ERFC 2001* an individual can retire at 30 years of service regardless of age.

**SAMPLE RATES OF SEPARATION
FROM ACTIVE EMPLOYMENT BEFORE RETIREMENT**

Ages	Years of Service	% of Active Members Separating within Next Year									
		Death				Disability				Other	
		Ordinary		Duty		Ordinary		Duty			
		Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
25	4 & Up	0.02%	0.01%	0.00%	0.00%	0.03%	0.02%	0.01%	0.00%	11.20%	15.40%
30		0.03%	0.01%	0.00%	0.00%	0.03%	0.02%	0.01%	0.01%	7.60%	11.20%
35		0.03%	0.02%	0.00%	0.00%	0.05%	0.04%	0.01%	0.01%	5.40%	7.60%
40		0.04%	0.02%	0.00%	0.00%	0.07%	0.06%	0.02%	0.02%	3.80%	4.20%
45		0.05%	0.03%	0.01%	0.00%	0.10%	0.09%	0.03%	0.02%	3.00%	3.00%
50		0.08%	0.04%	0.01%	0.01%	0.17%	0.15%	0.04%	0.04%	2.00%	3.00%
55		0.13%	0.07%	0.02%	0.01%	0.29%	0.25%	0.07%	0.06%	3.20%	4.20%
60		0.22%	0.12%	0.03%	0.01%	0.49%	0.35%	0.12%	0.09%	4.00%	5.00%
Ref:		0.40 x 261	0.40 x 262	0.05 x 261	0.05 x 262					669	670
		sb 3	sb 3	sb 3	sb 3	0.16 x 16	0.16 x 17	0.04 x 16	0.04 x 17	1153	1154

Rates of separation for members with less than 4 years of service are assumed to be: 16% in the first year for both, men and women, 13% in the second and third years for men, and 14% in the second and third years for women.

SAMPLE PAY INCREASE ASSUMPTIONS FOR AN INDIVIDUAL MEMBER

Pay Increase Assumption			
Service Index	Merit & Seniority	Base (Economy)	Increase Next Year
1	5.30%	3.75%	9.05%
2	3.80%	3.75%	7.55%
3	3.30%	3.75%	7.05%
4	3.10%	3.75%	6.85%
5	2.90%	3.75%	6.65%
6	2.70%	3.75%	6.45%
7	2.70%	3.75%	6.45%
8	2.30%	3.75%	6.05%
9	2.10%	3.75%	5.85%
10	1.80%	3.75%	5.55%
11	1.80%	3.75%	5.55%
12	1.80%	3.75%	5.55%
13	1.80%	3.75%	5.55%
14	1.80%	3.75%	5.55%
15	1.80%	3.75%	5.55%
16	1.80%	3.75%	5.55%
17	1.80%	3.75%	5.55%
18	1.80%	3.75%	5.55%
19	1.80%	3.75%	5.55%
20	1.00%	3.75%	4.75%
21	1.00%	3.75%	4.75%
22	1.00%	3.75%	4.75%
23	1.00%	3.75%	4.75%
24	1.00%	3.75%	4.75%
25	0.00%	3.75%	3.75%
Ref:	386	3.75%	

RATES OF FORFEITURE FOLLOWING VESTED SEPARATION

Age at Separation	Sample Entry Age				
	25	30	35	40	45
30	0.5000				
31	0.4750				
32	0.4500				
33	0.4250				
34	0.4000				
35	0.3750	0.5000			
36	0.3500	0.4667			
37	0.3250	0.4333			
38	0.3000	0.4000			
39	0.2750	0.3667			
40	0.2500	0.3333	0.5000		
41	0.2250	0.3000	0.4500		
42	0.2000	0.2667	0.4000		
43	0.1750	0.2333	0.3500		
44	0.1500	0.2000	0.3000		
45	0.1250	0.1667	0.2500	0.5000	
46	0.1000	0.1333	0.2000	0.4000	
47	0.0750	0.1000	0.1500	0.3000	
48	0.0500	0.0667	0.1000	0.2000	
49	0.0250	0.0333	0.0500	0.1000	
50	0.0000	0.0000	0.0000	0.0000	0.0000

Forfeiture occurs when a vested person separates from service and withdraws contributions thereby forfeiting future rights to an employer financed benefit. The total probability of forfeiture is obtained by multiplying the probability of “other separation” from page G-8 by the probability of forfeiture from this table. The table does not apply to individuals who are eligible for retirement at time of termination.

Investment Return and Inflation: Past and Future

Inflation Distortions

Inflation's impact on investment return is not uniform from year to year. A common expectation for real investment return (which is the portion of total return remaining after price inflation) is in the area of 3% to 5% annually.

Historical Economic Data

Over the last 30 years, real return on average has exceeded the 3% to 5% range. However, for parts of this period, real return was actually negative. It is difficult to maintain a long-term portfolio allocation during periods of negative real return.

**Annual Investment Return % (including Income) expressed as
Real Return (Remainder after Price Inflation)**

No. Years Ended December	Inflation (CPI)	Cash Equiv. (T-Bills)	Bonds (Long Term)		Stocks (S & P 500)	Real Return for Sample Fund		
			US Treasury	Corporate (Sol. Bro.)		A	B	C
1/2010	1.5	(1.4)	8.5	10.7	13.4	9.7	10.4	11.0
1/2011	3.0	(2.9)	24.5	14.6	(0.9)	11.2	7.1	3.8
1/2012	1.7	(1.6)	1.6	8.8	14.1	7.2	8.9	10.4
1/2013	1.5	(1.5)	(12.7)	(8.5)	30.4	2.7	10.8	17.1
1/2014	0.8	(0.8)	22.9	16.4	12.8	15.6	14.2	13.0
5/1980	9.2	(1.3)	(6.9)	(6.2)	4.3	(2.6)	(0.4)	1.3
5/1985	4.8	5.2	11.5	12.3	9.4	10.7	10.2	9.8
5/1990	4.1	2.6	6.4	6.1	8.6	6.7	7.2	7.6
5/1995	2.8	1.5	10.0	9.1	13.4	10.0	10.8	11.3
5/2000	2.5	2.6	4.9	3.2	15.4	7.7	10.0	11.7
5/2005	2.5	(0.4)	5.1	6.6	(2.0)	3.4	2.0	0.7
5/2010	2.2	0.0	3.3	3.6	0.1	3.1	2.6	2.0
5/2014	1.7	(1.6)	8.1	8.1	13.6	9.1	10.2	11.0
30/2014	2.7	1.0	6.8	6.5	8.4	7.1	7.5	7.7

Sample Funds (only three of many reasonable samples)

	A	B	C
Cash Equiv.: T-Bills	10 %	10 %	10 %
Bonds: US Treasury	30	20	10
Bonds: Corporate	30	20	15
Stock	30	50	65

For many pension plans, benefit increases after retirement have fallen short of keeping up with inflation. The retired life group has been affected more than the active life group. The investment return that would be necessary for the indexing of benefits with inflation after retirement probably cannot be realized during periods of high inflation.

Forward-Looking Economic Data

The assumed rate of price inflation should not give undue weight to recent experience. Some historical economic data may not be appropriate for use in developing assumptions for future periods due to changes in the underlying economic environment. Professional forecasters, economists, and investors are reliable sources to guide in the selection and evaluation of expected future price inflation rates.

Investment Return and Inflation: Past and Future - Concluded

The Survey of Professional Forecasters, maintained by the Federal Reserve Bank of Philadelphia, is the longest running quarterly survey of macroeconomic forecasts in the U.S. Over 50 forecasters from industry, government, banking, and academics are included in this Survey. With respect to price inflation, their median projections are published quarterly for the annual-average Headline CPI over the next 10 years. Headline CPI is the total CPI, as opposed to Core CPI, which excludes food and energy prices. The following table presents the Survey's quarterly projections through the first quarter of 2015.

Quarterly Median Projections of the 10-Year Annual-Average Headline CPI-U Inflation (Philadelphia Federal Reserve)

2012-2	2012-3	2012-4	2013-1	2013-2	2013-3	2013-4	2014-1	2014-2	2014-3	2014-4	2015-1
2.48%	2.35%	2.30%	2.30%	2.30%	2.21%	2.30%	2.30%	2.30%	2.30%	2.21%	2.30%

Source: Federal Reserve Bank of Philadelphia – Survey of Professional Forecasters Quarterly (Inflation.xls)

The Congressional Budget Office (CBO) regularly publishes its Budget and Economic Outlook. This report includes a forecast of annual CPI-U (All Urban Consumers). The following table presents the CBO's forecast for calendar years 2015 – 2025, as published in its report dated January, 2015.

Consumer Price Index Forecast (CBO)

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Compound Average
1.50%	2.30%	2.30%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.30%

Source: Congressional Budget Office – The Budget and Economic Outlook: 2015 – 2025 (p. 30)

The Trustees of the Social Security system prepare and publish an annual report. Social Security's economists develop a forecast of future CPI-W (for Urban Wage Earners and Clerical Workers). The following table presents their forecasts in the 2014 annual report.

Social Security Trustees' Ultimate CPI-W Assumption for 2020 and later

Low-cost	3.40%
Intermediate	2.70%
High-cost	2.00%

Source: 2014 Social Security Trustees' Report (p. 8)

Another source of information about future price inflation is the market for U.S. Treasury bonds. Comparing spreads between nominal and inflation-indexed treasury securities (TIPS) provides an estimate of the bond market's expectation of inflation over the next decade or more. However, this analysis ignores the inflation risk premium that buyers of U.S. Treasury bonds often demand, and it ignores the differences in liquidity between U.S. Treasury bonds and TIPS.

Treasury Constant Maturities (2014 Annual Yields)

Term	Nominal	Inflation-Indexed	Implied Inflation
10-year	2.54%	0.44%	2.11%
20-year	3.07%	0.86%	2.21%
30-year	3.34%	1.11%	2.23%

Source: Board of Governors of the Federal Reserve System, Selected Interest Rates (Daily) – H. 15

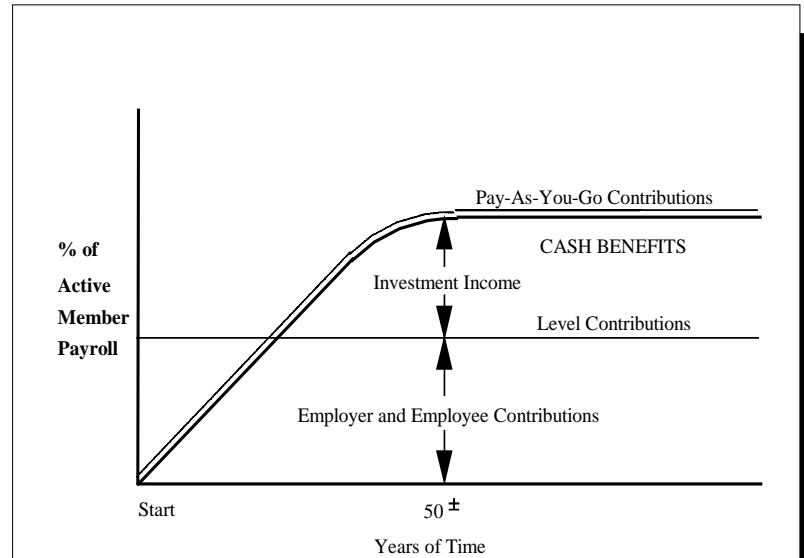
SELECTION OF ASSUMPTIONS USED IN ACTUARIAL VALUATIONS

Economic Assumptions

Investment return
Pay increases to individual employees:
the portion for economic changes
Active member group size and
total payroll growth

Demographic Assumptions

Actual ages at service retirement
Pay increases to individual members:
the portion for merit & seniority
Disability while actively employed
Separations before retirement
Mortality after retirement
Mortality before retirement



RELATIONSHIP BETWEEN PLAN GOVERNING BODY AND THE ACTUARY

The actuary should have the primary responsibility for choosing the *demographic* assumptions used in the actuarial valuation, making use of specialized training and experience.

The actuary and other professionals can provide guidance concerning the choice of suitable economic assumptions, but the basis of the economic assumptions is the assumed rate of *inflation*, a quantity which defies accurate prediction. Given an assumed rate of future inflation, it is very important that this rate be applied in a consistent manner in deriving the assumed rate of investment return, the economic portion of the assumption on pay increases to individual employees, and the assumed rate of growth of active member payroll. Consistent application of assumptions is an area in which the actuary has specialized training.

A sound procedure is that the actuary suggests reasonable alternatives for economic assumptions, followed by discussion involving the actuary, the Plan Governing Body, and other professionals, and the Plan Governing Body then makes a final choice from the various alternatives.

DEFINITIONS OF TECHNICAL TERMS

Accrued Service. Service credited under the system which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability. The difference between the actuarial present value of system benefits and the actuarial present value of future normal costs. Also referred to as “past service liability”.

Actuarial Assumptions. Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment return and pay increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (pay increases and investment return) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future benefits” between future normal costs and actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

Actuarial Equivalent. One series of payments is said to be actuarially equivalent to another series of payments if the two series have the same actuarial present value.

Actuarial Gain (Loss). The difference between actual unfunded actuarial accrued liabilities and anticipated unfunded actuarial accrued liabilities -- during the period between two valuation dates. It is a measurement of the difference between actual and expected experience.

Actuarial Present Value. The single sum now which is equal to a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

Actuary. A person who is trained in the application of probability and compound interest to problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries. The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation ASA. and ultimately to Fellowship with the designation FSA.

Amortization. Paying off an interest bearing liability with periodic payments as opposed to paying it off with a single sum payment.

Normal Cost. The portion of the actuarial present value of future benefits that is assigned to the current year by the actuarial cost method. Sometimes referred to as “current cost.”

Unfunded Actuarial Accrued Liabilities. The difference between actuarial accrued liabilities and valuation assets. Sometimes referred to as “unfunded past service liability” or, strangely, “unfunded supplemental present value” or simply as “unfunded liability.”

Valuation Assets. The value of plan assets recognized for valuation purposes. This may not be the same value that is used by the plan for financial reporting.

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Marriage Assumption:	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
Pay Increase Timing:	Nine months after the valuation date (October 1 st).
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Miscellaneous Loads:	For members hired prior to July 1, 2001 computed liabilities and normal costs are increased by 3.25% to reflect service credit for unused sick leave that may be granted at retirement.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability, mortality and turnover do not operate during retirement eligibility.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
Normal Form of Benefit:	The assumed normal form of benefit is the straight life form.
Benefit Service:	Exact Fractional Service is used to determine the amount of benefit payable.
Actuarial Equivalent Factors:	The interest rate is 7.5% for the Option D form of payment. For Small Pension payouts the interest rate is the lesser of 7.5% or the rate for 20-year Treasury Notes raised to the next highest integer from the December 1 st preceding the Calendar year of retirement. Mortality is based upon a 20% unisex blend of the 1994 Group Annuity Mortality Table set back 3 years for males and 3 years for females.